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ART. XIV. *The Book of the Prophet Iſaiah, in Hebrew and Engliſh: the Hebrew text metrically arranged. The Tranſlation altered from that of Biſhop Lowth; with Notes Critical and Explanatory. By Joſeph Stock, D. D. Biſhop of Killala, M. R. I. A. and formerly Fellow of Trinity College, Dublin.* Royal 4to. pp. 185. Price 1l. 1s. Robinſons, London. 1804.

THIS publication muſt be deemed very acceptable by thoſe divines, who have opportunities and inclination to ſtudy the Jewiſh Scriptures in the original language. The Hebrew text arranged in that metrical form, of which Dr. Lowth has proved it to be ſuſceptible, is printed with the verſion in ſuch a manner, that each line of the original, running from right to left, has in the ſame page, but in a different column, its correſponding Engliſh line proceeding in a contrary order, ſo that the eye at one glance can comprehend both. By this arrangement much time will be ſaved by the learner, who, if diligent, and previouſly acquainted with the elements of the Hebrew, will in a few months be able to maſter one of the nobleſt of the Jewiſh writers. But the uſefulneſs of the plan is but one of the many excellences which recommend this production to the notice of the public. The verſion in general is an evident improvement upon that of Lowth, and the critical remarks ſubjoined are ſo judicious, that all who have peruſed the work will join with us in ſentiments of reſpect and gratitude to the learned and elegant author for his trouble. What he ſays in reſpect to the arrangement of his text is too intereſting to be omitted, as it unfolds the circumſtances which directed his attention to the ſubject, and brings to our recollection a name that will ever be held dear to the lovers of Biblical knowledge.

"The reader is here preſented with a work, for which I ſhould probably have never found leiſure, if I had not been driven from the active duties of my ſtation by the late troubles in Ireland, and compelled for the ſpace of four years to give up my ſee-houſe for the accommodation of his Majeſty's garriſon at Killala. A good part of this interval I employed in renewing my acquaintance with

the Hebrew Scriptures, particularly after the deceaſe of my ever revered friend and brother-in-law *Archbiſhop Newcome*. *Sublatum ex oculis quærimus*, though I truſt not *invidi*. I had loſt him, but his works remained, the fruits of his unceaſing labours in the cauſe of ſacred literature; and to theſe I determined to give a more attentive peruſal than I have been able to beſtow on them at their firſt appearance. Often had that excellent man expreſſed a wiſh to me, that I would bend my powers to the ſame important object, which had been the purſuit of his own life, and that I would devote to ſacred criticiſm whatever ſagacity I poſſeſſed by nature, or had acquired by editing Greek and Latin claſſics. The counſel of a friend comes back upon the mind with a double energy when that counſel can be ſuggeſted no more. In the ſpace of one year I had read over the greater part of the Old Teſtament in Hebrew; and during my progreſs my ear became ſo accuſtomed to a certain rhythm or metre, ſeeming to pervade the whole of that ſacred volume, that I reſted at laſt in a conviction that not the Pſalms and the Prophecies only, but the hiſtorical parts alſo, commonly ſuppoſed to be written in proſe, are in fact compoſed in verſe, with no other difference from the reſt but that they want the ornaments and bolder features of poetry." (p. vi.) Perſuaded of the fact that the general run of verſes throughout the Old Teſtament are what the learned Biſhop Lowth diſtinguiſhes by the appellation of *Tetrameters*, I conceived a wiſh to ſee how the firſt of the Prophets, Iſaiah, would appear in his proper dreſs as a poet, his lines being reduced to metrical arrangement. Accordingly, I preſcribed to myſelf the laborious taſk of tranſcribing the original, purpoſing, at the ſame time, to accompany the text with the juſtly celebrated verſion of Biſhop Lowth, corrected, where it ſhould appear neceſſary, either by the later diſcoveries of the excellent German critic and tranſlator *Roſenmuller*, or by my own obſervation. Corrections of this nature became more numerous than I had expected; till at length almoſt a new tranſlation aroſe, which I now ſubmit to the judgment of the learned world, in the hope that I may be thought to have added ſomething to the elucidation of the moſt ſublime of poems; even after the labours of a Lowth, labours to which no man is more willing than myſelf to aſſign the tribute of high eſteem and praiſe."

The critical remarks, ſubjoined to the bottom of the page, are in a high degree conciſe and inſtructive. They are, indeed, too few to anſwer completely the purpoſe of illuſtration, and therefore frequently leave the reader in obſcurity. The excellence of the annotations, and the difficulties of the text, equally diſpoſe him to look about for aſſiſtance; and ſeldom is he more diſappointed than when he throws his eyes in vain to the bottom of the page. For the unfrequency and brevity of the notes, his Lordſhip makes the following modeſt apology:

"In the notes, the reader will obſerve that I have confined myſelf very much to the province of a verbal critic, leaving to thoſe who

who are better qualified for the undertaking, the important office of unfolding the myſtical ſenſe of the Prophet, or of ſhowing the accompliſhment of his predictions. The notes themſelves I ſtudied to draw into the narroweſt compaſs, conſiſtent with uſefulneſs. With this view I have, as much as I could, kept out of the road of controverſy with preceding interpreters on the meaning of diſputed paſſages, or the adjuſting of diſputed readings. I exhibit my own ſenſe, and in general leave the deciſion to the reader." (p. ix.)

Theſe general remarks reſpecting the character of the work, we will illuſtrate by a few examples; and that our readers may judge of the comparative excellence of the two verſions, we here inſert a ſpecimen from Lowth, and ſubjoin to it the improved verſion of Dr. Stock.

" Chap. III. v. 1. For behold the Lord Jehovah, God of Hoſts,
Removeth from Jeruſalem and from Judah
Every ſtay and ſupport,
The whole ſtay of bread, and the whole ſtay of water;
2. The mighty man and the warrior,
The judge and the prophet, and the diviner and the *ſage*,
3. The *ruler* of fifty, and the honourable *perſon*,
And the counſellor, and the ſkilful artiſt, and *the powerful in perſuaſion*.
4. And I will make boys their princes,
And *infants* ſhall rule over them;
5. And the people ſhall be oppreſſed, one man by another,
And every one ſhall behave inſolently toward his neighbour;
The boy toward the old man, and the baſe toward the honourable."

* * *

" 1. For behold the Lord Jehovah of Hoſts
Taketh away from Jeruſalem and from Judah
Every ſtay and ſupport,
The whole ſtay of bread, and the whole ſtay of water;
2. The mighty man, and the warrior,
The judge, and the prophet, the diviner, and the *ſenator*,
3. The *captain* of fifty, and the honourable *man*,
And the counſellor, and the ſkilful artiſt, and *the expert dealer in charms*.
4. And I will make boys their princes,
And *ſtriplings* ſhall rule over them;
5. And the people *ſhall preſs hard, one man upon another*,
And each man upon his neighbour:

6. *Inſolent ſhall they be, the boy to the aged,*
And the baſe to the reſpectable."

Chap. XIV. verſe 13, the verſion of Lowth is,

" Yet thou didſt ſay in thy heart, I will aſcend the heavens,
Above the ſtars of God will I exalt my throne;
And I will ſit upon the mount of the Divine preſence, on the ſides of the north."

That of our author is,

" Yet thou didſt ſay in thine heart,
To the heavens above will I aſcend,
To the ſtars of God will I exalt my throne,
I will ſit alſo upon the *mount of the aſſembly.*"

On the ſides of the north. This mount is explained by Lowth to be Mount *Moriah.* But in a note on the place Dr. Stock ſays,

" Not Mount Moriah, nor any place of religious worſhip, either in Judea or elſewhere; for that would be a manifeſt anti-climax to him who had already in imagination ſeated himſelf in the Heavens. The mountain here pointed out to us is the Olympus of the eaſtern nations, where they ſuppoſed their inferior gods to be met in council by the Supreme. Such a council ſeems alluded to in Job i. 6. ii. 1. It would of courſe be ſuppoſed to ſit on the greateſt heights, known to the Aſiatics, which were the mountains of Armenia to the north of their country. Hence this climber of heaven is ſaid to get up to the ſides of the north, the arctic regions. And perhaps this opinion of the ſeats of the gods may have been ſtrengthened by obſerving the coruſcations of the Aurora Borealis." Michael. Bib. Orient. P. V. p. 191, and in Supp. ad Lex. Heb. p. 1112.

If any thing be neceſſary to prove the juſtice of this explanation, it is the conſideration that the prince ſuppoſed to uſe theſe words was a pagan, who therefore was more likely to allude to a diſtinguiſhed article in the eaſtern mythology, than to an appointment of God with Moſes, which of courſe would be referred to only by a Jew.

To chap. xxxviii. 8, where the Prophet is ſaying that the ſun turned back ten degrees on the dial of Ahaz, is ſubjoined a figure taken from an eaſtern building, which anſwered the double purpoſes of a dial and an obſervatory, and which is ſuppoſed to have been like that of the Jewiſh monarch. The explanation there annexed though not ſufficiently intelligible without the figure, is yet too curious to be omitted.

" According to the known law of refraction, a cloud or body of air of different denſity from the common atmoſphere, interpoſed between

tween the gnomon and the coping or dial plate below, would, if the cloud were denſer than the atmoſphere, cauſe the ſhadow to recede from the perpendicular height of the ſtair-caſe, and of courſe to re-aſcend the ſteps on the coping by which it had before noon gone down; and if the cloud were rarer, a contrary event would take place. This ſuggeſts the manner in which the ſhadow might be made to go either back or forward, agreeably to the option propoſed by Iſaiah to Hezekiah, 2 Kings, xx. 9. That the miracle did not conſiſt in a reverſing of the earth's diurnal motion, but was reſtrained לארץ *to the land of Judea* merely, is plain from 2 Chron. xxxii. 31. Neither is the importance of the ſign itſelf, as an evidence of the divine power and veracity, in any degree diminiſhed by the ſuggeſtion, that the effect might in part be produced by natural means; for the wonder ſtill remains, that a cloud of a particular nature ſhould be brought forward at a place and time previouſly announced."

Improved as we eſteem this verſion to be, and happy as are the explanations given in many places, the work is by no means ſo perfect as the author had it in his power to make it. The critics who have principally furniſhed him with materials are Lowth and Roſenmuller. Of the learned labours of Michaelis he has made no uſe; his name he has only once mentioned in the whole work. Of our countryman Michael Dodſon, who was verſed beyond moſt Oriental ſcholars in the Hebrew tongue, he has taken no notice, though his tranſlation, given to the public with the expreſs purpoſe of ſupplying the defects of that of Biſhop Lowth, exhibits in many places manifeſt improvements, and the commentary annexed contains a great ſtore of criticiſm and erudition. Nor is this the only deficiency. The tranſitions in the thoughts of the Prophet ſhould have been marked, and the ſubject of every chapter, at leaſt of every chapter commencing with a new detail, ſhould have been briefly deſcribed. It is well known that a general acquaintance with the object of the writer affords conſiderable aſſiſtance to one, who is deciphering an unknown and difficult language: and of this Lowth has given an example which our author would have done well to follow. Of the numerous inſtances in which he has acquieſced in the erroneous interpretations of his predeceſſors, or has, we conceive, miſtaken the original, a few only ſhall here be ſelected, and that not with the view of depreciating the work, but to induce the learned prelate to reviſe it, and lay it before the public at ſome future period in a more correct and finiſhed form.

Chap. i. 21. "How is the faithful city become an *harlot!*" But the original of this laſt word (zune) has for its primary

meaning *caupona*, a *publican*; and as women of this claſs were generally licentious, the term came to ſignify a *harlot*. But the Prophet employs it in the former ſenſe, or rather to ſignify the *houſe* which ſhe kept: and it ſhould therefore be rendered *a brothel*. That this rendering of it expreſſes more properly the ideas of the ſacred writer is evident from the ſequel. "She was full of juſtice; righteouſneſs *lodged* in her." To the practice of coining, or circulating baſe metal, and of adulterating pure wines, prevalent in houſes of ill fame, the next alludes: "Thy ſilver is become droſs; thy rich wine is diluted with water." It is remarkable that all the ancient verſions, as well as modern interpreters, have fallen into this error.

Ver. 31. "And the ſtrong ſhall become tow, and his work a ſpark of fire." The original of *ſtrong* (חסן *heſan*) in Arabic ſignifies a *branch*, and might primarily denote from its *ſtrength* or *firmneſs* the *ſtock* of a tree, a clump of timber or ſtone. To ſuch rude and unformed maſſes the firſt idolaters offered divine worſhip; and, as Clement of Alexandria informs us, called the object of it σανις, apparently from the above Hebrew term. On the other hand נערת *nhoret* means the *extremities* of a tree, or the *leaves* and *bloſſoms*, in oppoſition to the ſtem as being *new* and *tender*. (Hence the Greeks have borrowed their epithet νεαρος *new*.) And as ſuch things were the chief materials for fire (ſee Harm. Obſer. vol. i. p. 264), in eaſtern countries, where ſuch materials were ſcanty, the word came to ſignify *fuel*. Hence it is extended to expreſs *ſtubble*, and the withered *ſtalks* of herbs, flax, and flowers, and is for this reaſon rendered καλαμη *ſtupa* by the Septuagint. The verſe ſhould then be rendered "And the ſtock ſhall become fuel, and their wrought idols ſparkling flames;" of which the meaning in general is, "The objects of worſhip, which the Jews borrowed from their Pagan neighbours, whether ſuch rude and unformed maſſes as the firſt idolaters adored, or graven and poliſhed images, ſuch as were adopted in later times, theſe ſhall be thrown into the fire, and like fuel be conſumed in the flames." It is worthy of remark, that both theſe terms were ſuggeſted to the Prophet by aſſociation from the preceding verſe, "When ye ſhall be an *ilex*, whoſe *leaves* are blaſted.

The ſecond chapter is a continuation of the firſt. The Prophet having mentioned the deſtruction of idols among the Jews, was led to extend the ſame thought to the Gentiles; he accordingly, in animated language, deſcribes their converſion under the Meſſiah to the worſhip of the only true God, and the prevalence of this pure and rational worſhip over heatheniſm,

heatheniſm, under whatever form the objects of it were found to exiſt.

"For the day of Jehovah of Hoſts cometh upon every thing proud and lofty, and upon every thing exalted, and it ſhall be humbled: and upon all the cedars of Lebanon; and upon all the oaks of Baſhan; and upon all the high mountains; and upon every elevated tower; and upon every fenced wall; and upon all the ſhips of Tarſhiſh; and upon every deſirable work of art; and the idols ſhall totally diſappear" ver. 12. 18.

Which, in other words, conveys a meaning to this effect:

"The altars uſually erected on elevated places ſhall be demoliſhed; the ſtatues of ſuppoſed tutelary gods of cities, or fortified towns, ſhall be thrown down; the images hung in the branches of lofty trees ſhall be pulled to the ground; the figures carved by navigators on the fore-part of their ſhips, and to which they had recourſe for protection in ſeaſons of danger ſhall be broken; and, finally, thoſe ſymbolical devices delineated on the outſide of feſtive veſſels, (ſuch as thoſe of Bacchus and Venus on the cup of Anacreon) ſhall be effaced. In ſhort, idols of all kinds ſhall be abandoned."

Plain and ſtriking as this interpretation is, our author has overlooked it, acquieſcing ſeemingly in that of Biſhop Lowth, which indeed is very wide of the truth. The words of the latter, that our readers may form a judgment upon them, we here in part annex. The "cedars of Lebanon, and oaks of Baſhan, are here uſed, by way of metaphor and allegory, for kings; high mountains for kingdoms; towers and fortreſſes for defenders and protectors: ſhips of Tarſhiſh and works of art for merchants!"

Kings and conquerors, it is well known, had the vanity and arogance of holding themſelves forth as gods to the people; and the worſhip of deified heroes, if not the firſt, was the moſt general practice of Paganiſm. In enumerating the ſeveral objects of idolatry, this has not been omitted by the Prophets, but the abolition of it is predicted in ſtrong terms. "And the haughtineſs of mortals ſhall be humbled, and the pride of man ſhall ſtoop, and Jehovah alone ſhall be exalted in that day: and the idols ſhall totally diſappear." ver. 17. The ſacred writer concludes with diſſuading men from inveſting mortals like themſelves with that honour and confidence which ſhould be repoſed only in God. "Ceaſe ye from man whoſe breath is in his noſtrils, (whoſe life is only the air which he breathes) for on what account is he to be thus eſteemed?"

Chap. iii. v. 12. "O my people, thy leaders are falſe guides,
And the track of thy paths they deſtroy."

The meaning and beauty of this verſe can be recovered only by recurring to the object, whence the writer has borrowed his alluſion. For the pretended conductors of the Jews in knowledge and rectitude the Prophet deſcribes under the image of a falſe guide, who, pretending to conduct the traveller under his direction in the ſtraight road, leads him aſtray; and when arrived at a place of privacy and ſecurity, robs him, and devours the very proviſion which he brought for the journey. Literally rendered, the verſe would run thus; "O my people, thoſe who direct you, cauſe you to go out of the way, and the proviſion of thy journey they devour." Thus בלע has its appropriate ſignification of *devouring*; and the diſſatisfaction, of which Lowth complains, is removed, without having recourſe to the emendation of Jarchi. The term ארח *areh, a road*, means a proviſion for a journey, a viaticum in Jer. xl. 5. In Prov. xv. 17, it denotes *a meal*.

The note which his Lordſhip has inſerted at the cloſe of this chapter; in which he traces the ſeveral articles of female dreſs to their roots, is worthy of notice and commendation, though not, perhaps, in every inſtance unexceptionable. Its length (and it is the only long note in the whole work) precludes our inſerting it.

We ſhall next take notice of the celebrated paſſage in which is predicted the birth of the Meſſiah. Our author, ſenſible that he was treading on tender ground, has adopted, without any amendment, the verſion of his predeceſſor, and has, it is to be ſuſpected, ſacrificed in ſome degree his judgment to his prudence. "For unto us (chap. ix. 6) a child is born, unto us a ſon is given; and the government ſhall be upon his ſhoulder: and his name ſhall be called Wonderful, Counſellor, the Mighty God, the Father of the future age, the Prince of Peace." This verſion is, we conceive, very remote from the true meaning of the Prophet. The following may be a more faithful repreſentation of his ideas. "He ſhall be called by a marvellous name, Counſellor of the mighty God, Father of the future age, Prince of Peace." Now, if we diveſt ourſelves of thoſe aſſociations to which we have been long accuſtomed, and examine the matter with the feelings and notions of a Jew, the names or titles here given to the Meſſiah will appear *truly marvellous*, or, to uſe more modern language, though appropriate, ſtriking, and juſt, will appear *unappropriate* and *paradoxical*. For firſt, he is called *Counſellor of the Mighty God*; and yet this is impoſſible: for it hath been aſked, *who hath been his Counſellor?* See Rom. xi. 34. Jer. xxiii. 18. Iſaiah xl. 13. But by this is meant no more than that the Meſſiah is the Counſellor, whom God ſhould employ in unfolding to the human race the grand ſcheme of their redemp-

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tion, and carrying it into execution. Hence the Greek tranſlators, underſtanding the clauſe in this light, have given the *ſenſe* rather than the *letter* of the original: for they render it μεγαλης βουλης αγγελος, *meſſenger of the great deſign*; and in this they have been followed by the Arabic tranſlator, and by the authors of the old Latin verſion, as appears from the Latin fathers, who have cited from it the words *Magni concilii nuncius.* This title, be it obſerved, moreover, is equivalent to the deſcription given of the Meſſiah in other parts. For Malachi chap. iii. 1, calls him *The Meſſenger of the Covenant*; and Paul, in Heb. iii. 1, ſtyles him *The Apoſtle of our Profeſſion.* The next title, apparently paradoxical, given to him is, though a child juſt born, that of *Father*; and father of what? a perſon derives that relation, and receives that title from an offſpring already in exiſtence, from one whoſe birth refers to time already paſt. But here he is named a father, and that of what is *yet to be*; father *of the future age*, πατηρ αιωνος μελλοντος, by which the Jews underſtood the grand period, yet in futurity, of the Meſſiah's reign. Laſtly, a *Prince* was a leader of an army, a conductor to war, and a commander in battle. But here, contrary to the uſual turn of language and expectation of the Jews, the Meſſiah is ſtyled the *Prince of Peace.*

The ſtriking and unexpected turn here given to the expreſſion has occaſioned an obſcurity, which could not be removed but by the advent of the diſtinguiſhed perſonage to whom it referred. His character and conduct ſupply the only comment that verify and illuſtrate it: and happy would it have been, if critics and commentators had diveſted themſelves of all attachment to eſtabliſhed creeds, and examined the original with candour and impartiality. If ſo, the truth in this, as in thouſand other doubtful points, would long ſince have been diſcloſed and embraced. But to return to the ſubject. The ambiguous and paradoxical meaning, veiled under the terms of the Prophet, and the development of their ſignification in the character of Chriſt, conſtitute what appears to be intended by the epithet פלא *pela*, for it ſignifies primarily *a veil*; and as obſcurity or ignorance is eſſential to *wonder* or ſurpriſe, it came to denote whatever is *wonderful* or *ſurpriſing.* Confined to its firſt import, the word would warrant this verſion of the clauſe, *And he ſhall be called by a veiled name.* The diverſion of words from their current application, ſo as to produce a combination new and unexpected, and which conſtitutes the veil or obſcurity here alluded to, is the effect of a lively imagination, and one of the chief beauties of compoſition, eſpecially of poetical compoſition. This might be illuſtrated by a variety of examples. But we ſhall content ourſelves with one only, ſelected from

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this very writer. The Jews, we have reaſon to believe, had the vanity to think and to ſpeak of themſelves, as a people peculiarly favoured beyond others, as a renowned nation, a people laden with honour, a race of Abraham, children of God and the like. And upon theſe, or ſome ſuch other titles, which their pride arrogated to themſelves, is built the following mortifying language of the Prophet. Ah *ſinful* nation! a people laden *with iniquity:* a race *of evil doers!* children *of degeneracy!* Chap. i. 4.

Chap. x. i. ii. "Wo unto them that paſs unrighteous decrees, and to the preſcribers, that dictate vexation, to turn aſide from their trial the needy, and to rob of their right the poor of my people; that widows may become their prey, and that orphans they may plunder."

We note this paſſage as containing a remarkable denunciation againſt thoſe who, placed by Providence in circumſtances of wealth and power, have in every age and country been prone to multiply laws, to heap up precedents, and by long and expenſive proceſſes to deprive the poor and the oppreſſed of all redreſs from juſtice. Of this ſignification the verſion of our author is not ſufficiently expreſſive. "Wo to the preſcribers that dictate vexation," literally, *that dictate toil,* meaning *burdenſome laws,* ſimilar to the *heavy burdens grievous to be borne,* which the ſcribes enacted, and placed on the ſhoulders of the people. See Mat. xxiii. 4.—"To turn aſide from their trial the poor:" literally "to *extend* from juſtice the oppreſſed," i. e. to withhold their right by the length, the uncertainty, and expenſe of legal proceedings. Againſt theſe abuſes Moſes had in vain dictated the truly divine command: "Thou ſhalt not *prolong* from juſtice (i. e. divert by long and tedious proceſſes) thy poor in his ſuit." Exod. xxiii. 6. In conformity with this precept the Meſſiah was predicted as the *diſpatcher of juſtice.* Iſa. xvi. 5.

Verſe 12, 13. "I will puniſh the fruit of the proud heart of the king of Aſſyria, and the grandeur of his elevated looks. For he ſaith, By the ſtrength of my hand have I done it, and by my wiſdom; for I am prudent. And I have removed the bounds of nations; and their ſtores I have plundered. *And I have let fall the curtain of the Inhabitants.*"

On the laſt clauſe the Biſhop has the following note.

"The metaphor here employed appears to me to have eſcaped the commentators, by their not knowing the meaning of the word כביר *chabir,* which is well explained by Parkhurſt to denote a muſquito-net, or curtain uſed in hot countries by people of the better ſort, to guard them at night from the noiſe and ſtings of thoſe troubleſome inſects, the gnats. It is a thin curtain of gauze, or goat's hair, let down from the teſter of the bed, encloſing it on every ſide, and

and thereby completely concealing the perſon in bed from view. The Italians call it *zinzariere*, from the noiſy inſect *zinzara*, as by the Greeks it was termed κωνωπειον from κωνωψ. To let fall the curtain of the inhabitants therefore is to hide them from view; to put them out of ſight by deſtroying them."

The hope of detecting errors, ſuppoſed to have eſcaped the attention of others, is ſo flattering, that men of taſte and diſcernment are in danger of being betrayed in the attempt into oppoſite errors ſtill more glaring; and to exerciſe their fancy where they ought to employ their reaſon. With due reſpect to the learned prelate, we think that this is the caſe in the preſent inſtance. The above Hebrew term as ſignifying *a cover*, with frequent interſtices, may ſignify *a net*, and probably by an interchange of מ and ב, *letters* of the ſame organs, is a corruption of כמר *chamer, a net*. But it by no means follows that it muſt be a muſquito-net. The context we apprehend ſhows the contrary. The cuſtom in all ages and countries has obtained of ſpreading nets over places where birds lie on the ground, which, when alarmed, riſe, and are entangled in the folds, and thus become the irreſiſting prey of the fowler: and the notoriety of the practice has furniſhed authors, ſacred and profane, with alluſions and metaphors, when in a lively manner they deſcribe the deſtruction which cunning, combined with force, has brought upon a people. See chap. xxiv. 17; and Lowth on the place. Mercury admoniſhes the chorus, the daughters of Oceanus, who, in the Prometheus of Æſchylus are repreſented as ſympathiſing with the ſufferer, to retire from the rocks; otherwiſe Jupiter would ſpread over them a boundleſs extended net of deſtruction, in which, from their ſimplicity they would be entangled. Εις απεραντον δικτυον ατης, εμπλεχθησεσθ' ὑπ' ανοιας, 1077. The ſame figure is here uſed by Iſaiah, as is evident from what follows. "And I will cauſe to be brought down a net on the inhabitants, and my hand ſhall find, as *a neſt*, the riches of the nations—neither was there any that moved the *wing*, or opened *the beak*, or *chirped*"—alluding to the cries which birds are known to make when taken in the toils, or when their neſts are plundered. The language thus borrowed and applied to the capture of the Jews, and plunder of their property, is animated, forcible, and appropriate; but what analogy does the deſign of the writer bear to men ſecured in peaceful repoſe on their beds from troubleſome inſects? The merit of correcting the text is, however, due to our author; and he is miſtaken only in the application of the figure. But another error has apparently crept into the original text: for in the room of ואוריד ſhould be ſubſtituted the very ſimilar verb ואורידך from רדד *to extend*;

extend; and the line ſhould then be rendered; *And I will ſpread the net over the inhabitants, &c.*

Occaſions like theſe call for critical remarks in all the remaining chapters; and they ſhow that, whatever attention has been paid by learned men to this prophet, the ſubject is far from being exhauſted; that the harveſt of Biblical Criticiſm, though long ſince ripening, is not yet completely gathered, but offers abundant recompenſe to ſuch as are diſpoſed, and able to carry their ſickle to this ſacred field.

The author before us is devoted to the Maſoretic punctuation; and has defaced and clouded the ſimplicity of the original with thoſe rabbinical punctilios. It is to be regretted that any among the truly learned, who endeavour to improve our knowledge of the Scriptures, ſhould eſpouſe any longer a ſyſtem which forms no part of the original ſtructure of the Hebrew tongue, but is the invention of dark ages; and of which the beſt that can be ſaid in its praiſe is, that it is uſeleſs in ſome reſpects, and ceaſes in others to miſlead only by being overlooked.

In emendatory criticiſm the biſhop indulges with ſufficient freedom; but he is not licentious nor unſkilful; nor has he introduced into the text any corrections that are not ſupported by obvious neceſſity, or the authority of MSS. and verſions. A table of theſe corrections is inſerted at the end of the volume, with the authorities annexed.

We notice with regret that the text abounds with typographical errors; letters ſimilar in form are often ſubſtituted for each other, and the reader in danger of being frequently miſled. But theſe errors may hereafter be corrected, and we hope to ſee a ſecond edition of this excellent work in a form ſtill more finiſhed and uſeful. This hope we are led to entertain from the induſtry and ingenuity of the author, and from a circumſtance which he has mentioned in the preface, p. xi, and which it would be injurious to paſs over unobſerved—"The late Archbiſhop Newcome crowned his former labours by bequeathing to the Library at Lambeth MS. notes on the entire of the Old Teſtament, which would undoubtedly be ſtudied with great profit by any new editor; and I have to lament, that diſtance from that library, added to a multitude of avocations, has prevented me at preſent from conſulting the notes upon Iſaiah left by my venerable friend. They may appear in a ſecond edition of this work, if a ſecond ſhould happen to be called for."

ART. XV. *Observations on the Formation and Management of useful and ornamental Plantations, on the Theory and Practice of Landscape Gardening; and on gaining and embanking Land from Rivers or the Sea. Illustrated with Plates. By J. Loudon, Landscape Gardener, &c.* 8vo. pp. 342. Price 10s. 6d. Constable and Co. Edinburgh; Longman and Co. London. 1804.

WHEN Mr. Loudon prefixed the motto to the first division of his work, he seems not to have recollected, that the impressions made upon us, when we are introduced to a stranger, be it a man or a book, generally prepossess or prejudice us in the opinion which we form on further acquaintance. Had this important truth occurred to him, he would not have displayed his affectation and his ignorance of learning by the barbarous lines that strike the eye "in all the pomp of capitals," immediately below the half-title; and which, if we may interpret the abbreviation affixed to them, in the usual way, he meant to impose upon us as the production of Horace. The reader shall judge for himself whether the Bard of Venusium ever wrote the following lines, and whether they be intelligible in any language with which he is acquainted:

"Omne tulit punctum est
Qui miscuit utile dulce." HOR.

We would, however, advise the reader not to yield to the unfavourable impressions which the sight of these lines must necessarily produce, and throw away the volume in disgust, as we can safely assure him that they will speedily be effaced, and supplanted by a high opinion of the author's taste, judgment, and skill, at least in the two first divisions of his work. Indeed, if we except a too high value which he puts upon mere ornament, and the introduction of some remarks, rather fanciful than solid, Mr. Loudon's treatises on Plantations and Landscape Gardening present a more happy and successful application of the principles of good taste to the creation of artificial scenery, than any with which we are acquainted. He seems to have profited by the judgment and elegant discrimination of Mr. Price and Mr. Knight, while at the same time his admiration of the picturesque is not so confined and prejudiced as to make him despise or neglect the mild and simple beauties of nature. We hope, as he professes to lay out grounds agreeably to the designs and principles which he has unfolded in the present work, that those landed gentlemen who can perceive and relish the beautiful, the picturesque, and the sublime (characters which he seems to think may be stamped, or more deeply and extensively impressed, on almost every scene) will have

have ſpirit and reſolution enough to ſecure them, if they be within their power.

Mr. Loudon, in the firſt diviſion of his work, "On uſeful and ornamental Planting," after having given ſome plain general directions, by which the different objects of planting,—"ornament, profit or value, ſhelter or ſhade," may be obtained, proceeds to point out the characteriſtic diſtinctions and particular properties of trees and ſhrubs. His obſervations on this part of his ſubject are more full, minute, and exact, than any we have met with elſewhere. All the characteriſtic diſtinctions and particular properties of the different trees and ſhrubs, which are generally planted in this country, either for ornament or uſe, are ſpecified in ſuch a clear and diſtinct manner, that no perſon can be at a loſs to ſelect thoſe that will beſt ſuit his ſoil and ſituation, and moſt effectually promote the object he may have in view. As this part of Mr. Loudon's work appears to us to be the moſt original, and affords a fair ſpecimen of his minute attention and practical knowledge, we ſhall ſelect his remarks on the colour of trees.

"*Colour* in trees or ſhrubs is either *accidental* or *permanent*. *Permanent* colours include all the different ſhades of *green* in the ſummer months; *accidental* colours, the tints of *red* and *yellow* that are peculiar to autumn and ſpring.

"Some permanent colours are of a *dark green*, as thoſe of the horſe-cheſnut and the yew; ſome are of a *light green*, as thoſe of the aſh and common laurel, ſome are of a *blue green*, as thoſe of the Scotch fir and bladder ſenna. Some trees are of a *green, tinged with brown*, as the Virginian cedar; others of a *green, tinged with white*, as the abele and the Lapland willow. Some greens are *tinged with yellow*, as the aſh-leaved mapple*, and the Chineſe arbor vitæ; ſome are *tinged with red*, as the ſcarlet mapple; others are *tinged with purple*, as the purple beech. Some greens are ſpotted with *white*, *yellow*, and *red*, as the variegated holly, privet, ſycamore, box, and many others.

"*Accidental* colours are infinite in number, and each kind is liable to much variation.

"In autumn, however, it will generally be found that the wild-cherry aſſumes a *bright red*, the birch a *deep red*, the beech a *browniſh red*, the ſcarlet oak a *deep ſcarlet*, the hornbeam a *ruſſet colour*, the ſugar-mapple a *rich yellow*, the oak a *reddiſh yellow*, the lime and aſh a *ſtraw colour*, the poplar *black*, the ſycamore *brown*, &c. (p. 43.)

He very juſtly ridicules that falſe taſte and ignorance of the principles of natural ſcenery, which expects to imitate the variety, from which it always pleaſes, by mixing, without regard

* Mr. Loudon uniformly ſpells *maple* in this unauthorized manner.

regard to unity of character, harmony, or general effect, trees of all the different ſizes, forms, and colours, which can poſſibly be made to grow on the ſame ſoil and in the ſame ſituation. The rules and directions that he lays down may all be illuſtrated and defended by the operations and management of nature in thoſe ſcenes where ſhe diſplays her moſt finiſhed ſpecimens of the beautiful, the pictureſque, or the ſublime. As the perceptions and pleaſures of a good taſte muſt have been derived from the contemplation and ſtudy of theſe ſcenes, it is evident that the moſt cloſe and accurate imitation of them will afford the moſt exquiſite and laſting gratification to every perſon who has purſued the proper mode of cultivating that delicate and inexplicable faculty of the mind. By ſuch Mr. Loudon's directions will immediately be approved; though they will as certainly diſpleaſe thoſe who cannot reliſh ſimple and unartificial beauty. Where profit is the object in planting, our author is ſtill directed in his operations by nature: ſhe uniformly has planted certain trees, ſhrubs, plants, and graſſes together, on certain ſoils, and the mode of arrangement which he follows and recommends, very properly aſſigns to each ſoil its appropriate *growth*. In ſhort, he adviſes to ſtudy nature attentively and enthuſiaſtically; never to counteract her operations; to fill up and complete what ſhe may have only rudely and boldly ſketched; and even in removing or altering the defects which ſometimes appear in her works, to be directed ſolely by the principles and rules according to which ſhe ſeems to have created her more highly favoured ſpots.

In the arrangement of the remaining ſections of this part of his work, Mr. Loudon has very improperly conſidered the mode in which young plantations ought to be ſheltered, before he has given directions for the preparation of the ſoil *previous* to planting. On this latter ſubject his obſervations are very judicious, and if carefully attended to would prevent that loſs and diſappointment which often attend young plantations. It is, indeed, ſurpriſing that gentlemen, who ſeem to acknowledge the neceſſity and perceive the advantages reſulting from a ſoil properly prepared in their gardens, and in their arable and paſture fields, ſhould be ſo careleſs and inattentive to the propriety and œconomy of preparing the ſoil previouſly to planting. The ground is ſeldom drained or cleared; and the roots of the young trees are left to penetrate through a ſolid and matted ſoil, which might be at once prepared and rendered profitable by the previous planting of green crops.

In the ſection on the Pruning of Plantations, he recommends the bending of the larch to the form which will ſuit the ſhip-

ſhip-carpenter, and explains, in a plate, the mode in which it ought to be made to grow. If this mode be practicable it ought to be adopted, not only with reſpect to the larch, but alſo with reſpect to the oak, aſh, &c.; ſince it is well known that the wheel-wright, and eſpecially the ſhip-carpenter, are obliged either to throw aſide as uſeleſs many pieces of timber, or elſe to ſpend much time, and waſte great part of them, before they can fit them for their reſpective purpoſes.

Whoever has attentively obſerved the plantations of this kingdom (eſpecially in the northern part of it), muſt have attributed the ſlow and ſtinted growth of many of them to the utter neglect or improper mode of thinning. Mr. Loudon very juſtly remarks, that "artificial thinning is only aſſiſting nature" (p. 137.); as natural foreſts have been reduced to that ſtate of thinneſs in which they thrive beſt, by thoſe trees which derive greater vigour and celerity of growth from the quality of the ſeed, and the nature of the ſoil on which it happens to fall, over-topping and deſtroying the reſt. That economy is very ſhort-ſighted and prejudicial, which looks to the number rather than to the ſize and quality of trees in a plantation.

In a note to page 148, Mr. Loudon carries his predilection for natural ſcenery beyond the bounds which real taſte and ſound judgment would preſcribe. He would admit the bramble into artificial ſcenery, becauſe no plant would give it a more natural appearance. This might be allowable if artificial ſcenery were merely to look at, and if, when we beheld the bramble forming part of it, we could diveſt ourſelves of thoſe diſagreeable ideas, which it never fails to excite in the minds of ſuch as have once been in contact with it. Beſides, if it were generally introduced into artificial ſcenery, it would ſoon ceaſe to give a *peculiarly* natural appearance to it: where we ſee brambles abound, the idea that the hand of man has been there does not intrude upon thoſe emotions which the view of nature excites, principally, if not entirely, becauſe we have not been accuſtomed to ſee them introduced into artificial ſcenery.

To the inviſible "fence invented by J. Loudon," of which there is a plate, facing page 153, we have a very powerful and deciſive objection.—He deſcribes it thus: "An excavation is formed eighteen or twenty inches deep, and ſix or eight feet wide; a railing made of larch wood (either a plain rail, or croſſed in the way of wicker-work by the ſmall branches), is placed horizontally above it, on a level with the ſurrounding ſurface: the bottom of the excavation is ſown with graſs ſeeds, which will grow about as high as the rail; and

and covering it will render the whole inviſible. Should it grow much higher, it can eaſily be topped with the ſcythe." But does not Mr. Loudon perceive that the very circumſtance which will render it inviſible, (and conſequently give it a natural appearance) and take away the apprehenſion of conſtraint, viz. the ſowing of the excavation with graſs ſeeds, and ſuffering the graſs to cover the rails, will tempt the cattle to approach it, and at the ſame time conceal the danger to which both they and the railing are expoſed by not treading directly on one of the branches of it? In nine caſes out of ten, either the cattle or the fence, or both, would ſuffer. Mr. Loudon, indeed, has very conſiderately, in one of the figures of plate IV, repreſented a cow ſtepping directly on one of the rails, and coolly bending on one knee as if ſhe were going to lie down and ruminate. The objection we have urged might perhaps be removed by not ſowing graſs ſeeds in the excavation, as in this caſe the cattle would not be tempted near it, or, if they approached, the appearance of the hollow beneath the fence would probably deter them from endeavouring to croſs it: but then, the *effect* would be ſpoiled; and Mr. Loudon, we apprehend, would heſitate, before he preferred utility to ornament, where one muſt be given up.

Mr. Loudon concludes the firſt diviſion of his work with enforcing the neceſſity of gentlemen committing the care and ſuperintendence of their plantations to men of more experience, ſkill, and taſte, than ſtewards, gardeners, and foreſters. We cannot help thinking that his remarks on this ſubject would have been received with more attention, and productive of more effect, if the oblique advertiſement of himſelf, with which they are intermixed, were not ſtrongly calculated to create a prejudice againſt their juſtneſs and importance.

In his "Obſervations on the Theory and Practice of Landſcape Gardening," after referring his readers to Mr. Price's Eſſays, Mr. Knight's Poem, Maſon's Eſſay on Deſign, Maſon's Engliſh Garden, Abbe de Liſle's Poem, Whately's Obſervations, Mr. Gilpin's writings, and ſeveral other works, for the diſcuſſion of "the principles of landſcape gardening, and an account of the materials of landſcape gardening," he proceeds to conſider "the nature and uſe of *character*, and the different *ſubjects* of landſcape gardening, as having been "leſs touched upon than the other heads by moſt writers." (p. 220.)

As unity of character is the grand ſource of thoſe emotions with which natural or artificial ſcenery is viewed, it is the province of art, both when it aſſiſts and when it imitates nature, to have this object conſtantly and excluſively in view. Where nature has impreſſed a decided character of ſublimity,

 pictureſqueneſs,

picturesqueness, or beauty, nothing incongruous should be admitted; on the contrary, the hand of man should merely be the assistant of nature, and heighten the effect already produced, by the introduction of such objects alone as, from their appearance and situation, will render the whole still more sublime, picturesque, or beautiful. Mr. Loudon is more happy and distinct in *explaining* the difference between beauty and picturesqueness, and between uglineſs and deformity, than in the attempt he has made to convey the difference to the reader's eye by means of a plate: the four outlines in it, which he respectively denominates beautiful, picturesque, ugly, and deformed, we should instantly have pronounced specimens of lines of different degrees of uglineſs, if we had not been directed to the characters which they were intended to bear, by the kind assistance of the epithets placed above each of them.

His censure of what is styled English Gardening is severe, but just: we have merely changed one kind of formality for another, less unnatural and displeasing indeed than what our forefathers admired, but still tiresome to every person after a short acquaintance with it, and immediately and powerfully disgusting to a man of real taste. It is surprising, that while in every other branch it has been considered as the perfection of art to conceal art, we seem in artificial scenery and landscape gardening to have been afraid, lest the labour and skill of man should have been mistaken for the operations of nature. Though we perfectly coincide with Mr. Loudon in his observations respecting the principle, according to which natural characters of uglineſs or deformity should be changed, and appropriate, emulative, and emblematical characters should be introduced or created, and particularly recommend this part of his work to the man of taste; yet even here we detect a too strong predilection for mere effect, a forgetfulness that scenery is not merely to be viewed at a distance; a preference of the associated emotions derived from the contemplation of nature to those which a regard to utility, or health, or convenience must suggest, in every one not so enthusiastic as Mr. Loudon. The following passage will explain what we mean, and point out the justice of our remark.

"The wilder or more natural the scene which the walk passes through, the more anxious is the gardener to show his labours, either by the frequent addition of fresh gravel, when mosses, weatherstains, or any such picturesque appendages begin to appear; or with the scythe and paring-irons divesting their edges of the intricacy which vegetation, during a slight relief from his operations, has a continual tendency to produce." (p. 277.)

In

In the concluſion of this part of his work, Mr. Loudon gives ſome plain and judicious directions, by which a practical knowledge of the art of landſcape-gardening may be attained. As his volume bears many deciſive proofs that theſe directions are the reſult of experience and practice, and have been ſucceſsful in his own inſtance, we ſhall lay them before our readers: from them they will be enabled, better perhaps than from any thing we have ſaid, to form a juſt expectation of the inſtruction and intereſt which this part of the work is capable of affording.

"The eaſieſt and moſt complete way, in my opinion, to get a practical knowledge of the art of landſcape-gardening, is, after a liberal education, firſt to acquire a tolerable knowledge of agriculture, gardening, botany, and architecture; particularly gardening and botany. Secondly, to ſtudy the principles and follow the practice of landſcape-painting. Then to read Price's Eſſays, Knight's Poem, D'Ermenville's Eſſay, Gilpin's Works, Shenſtone's Remarks, and ſeveral other books on this ſubject. Next to viſit and make ſketches from the moſt romantic parts of the country. After this time we may ſuppoſe the artiſt has acquired a juſt reliſh for nature, and a correct idea of the general principles of painting, combined with his practical knowledge of the materials of real landſcape. Now (and not before, leſt his taſte ſhould be vitiated) he may viſit all the beſt improved places to acquire a juſt notion of convenience in laying out a place. He may then be placed as aſſiſtant to a practical landſcape-gardener, and after he has been there a ſhort time, to ſtudy the buſineſs-part of the art, he may commence for himſelf.

"Such a courſe of education would lead a landſcape-gardener and planner of improvements to think for himſelf. His guides at all times would be NATURE and UTILITY; and, in every caſe which might occur in the courſe of his practice, he would blend them together in ſuch a way as would beſt accord with the character, ſituation, and the given circumſtances of each particular place or ſcene." (p. 294-5.)

"Obſervations on a new mode of gaining and embanking Land from Rivers or the Sea," occupy the third and laſt part of Mr. Loudon's volume. He attributes the failure which frequently attends embankments, to the form and the materials which are commonly employed; and, in order to aſcertain thoſe that are beſt adapted to render an embankment permanently ſecure, at the leaſt expenſe, he examines and points out the circumſtances on which the ſtrength and durability of what may be termed *natural embankments* depend. The angle of the ſlope in theſe is always conſiderable: and the materials of which they are conſtructed are ſmooth in their ſurface, and firm and compact in their texture; hence the utmoſt

violence of the tides and floods makes but a feeble and trifling impreſſion on thoſe banks and ſhores before which nature has erected her protecting barriers. In artificial embankments, therefore, the ſlope ſhould be more lengthened and gradual than that which is uſually given to them: and the utmoſt care ſhould be taken, that no projections or holes be left on the ſurface, or ariſe from the nature of the materials employed, ſo as to increaſe or concentrate the power of the water. In many caſes and ſituations, the principles on which nature appears to have ſelected the form and materials of her moſt durable embankments, may be applied to the erection of *dikes*, which ſhall anſwer the purpoſes of art better than an exact and ſcrupulous imitation of nature.

—— "In ſome very ſandy ſhores embankments may be made entirely of wicker-work. Three or four rows may be made of different heights, and the intervals betwixt them filled with furze, bruſhwood, or ſtraw. Theſe materials would retain the ſand as the tide paſſed through; and in a very ſhort time an embankment would be made, which ſhould then be planted with the elymus arenarius to bind it, and at extraordinary tides it would continue to attract more, until at laſt it was raiſed above their reach."—(p. 316.)

One of the principal and moſt common obſtacles in the way of embankments is well known to proceed from the extreme difficulty of "preſerving them from the ſea, while they are conſtructing, ſo as the workmen may go on with the work, independent of the ebbings or flowings of the tide." Mr. Loudon thinks that he has effectually removed this obſtacle, by the invention of a barrier, of which he gives a long, but certainly not a full or ſatisfactory account, and an engraving, with his claim to the invention conſpicuouſly ſtated in it. We muſt acknowledge, even at the riſk of being claſſed by the inventor with thoſe "whoſe ideas are contracted, and whoſe incredulity reſiſts every new ſcheme," (p. 330) that his boaſted barrier appears to us to be a contrivance very inadequate to the purpoſes to which he would apply it, and no very happy ſpecimen of his mechanical ſkill. We cannot imagine, indeed, that Mr. Loudon ever ſeriouſly examined it, even in theory; otherwiſe he muſt have perceived that the application of it to any practical purpoſe was totally out of the queſtion. Some of the objections to it, which we ſhall immediately urge, may perhaps be obviated by a more full and particular account than is here given; others, we heſitate not to ſay, are decidedly ſubverſive of the idea of its being uſefully employed for embankments.

This

This barrier is formed of triangular truſſes of wood, and is to ſurround a part of the foundation of the propoſed embankment, with the ſloping ſides of the truſſes fronting the ſea all round; "the truſſes being placed and fixed upright by croſs rafters, the whole may be laid over with ſingle deals, without being cloſely joined, and then covered with oiled canvaſs, or pitched ſailcloth, neatly faſtened on, and cemented at the joinings with a compoſition made of tar and clay." (p. 324.) As all the materials here mentioned are ſpecifically lighter than water, it is evident, that when the tide has ſurrounded the barrier, it will float. While the inner ſide remains *aground*, the weight of the water on the ſloping outer ſide poſſibly may, in ſome inſtances, only preſs it down the more and render it the firmer; but certainly, in moſt ſituations, the outer ſide would float, as ſoon as a ſufficient quantity of water reached it, even though the circumſtance of the inner ſide being aground prevented the whole barrier from being removed from its place; and whenever there was a ſufficient depth of water on the inner ſide, this ſide muſt riſe, and the whole be driven toward the ſhore by the impulſe of the ſea on the outer ſide. Thus it appears that the water muſt neceſſarily get within the barrier, in ſuch a quantity, and with ſuch a force, as to hinder the workmen from proceeding, and to expoſe the part already built, (if any progreſs could poſſibly be made,) to great danger. But allowing that, by the introduction of ſome materials not mentioned by Mr. Loudon, the ſpecific gravity of the barrier were increaſed, ſo as to prevent it from floating, or being occaſionally raiſed up on its outer ſide by the impulſe of the waves,—we would aſk him how he is to manage when the ſpace included within the barrier is built upon. He tells us, indeed, that "when the length of wall contained within one of theſe incloſures is finiſhed, the barrier muſt be moved along, ſo as to take in another ſpace, which muſt be built upon as before. The barrier muſt then be again taken down and replaced, &c.; and ſo on until the whole line of embankment is finiſhed." All this may be very ſatisfactory to thoſe whoſe credulity embraces every new ſcheme; but we ſeriouſly truſt that Mr. Loudon will aſk himſelf a few queſtions, before he attempts to put his barrier to any practical purpoſe. Let us ſuppoſe the included ſpace built upon, (though we ſhall preſently ſhow that we are granting more than Mr. Loudon's invention can poſſibly effect,) the barrier is taken down, and is to be replaced ſo as to include another ſpace in the line of the embankment now built; it is plain, even from the engraving, that one end of the barrier muſt be placed either on the end of the new embankment, or on the ground near the

end of it. In the former caſe, one part of the barrier will be raiſed a great deal higher than the other (in proportion to the height of the embankment); in the latter caſe, as the end of the new embankment muſt be left nearly perpendicular, and as the barrier ſlopes conſiderably on every ſide, it is abſolutely impoſſible to make the barrier ſit cloſe to the end of the part already finiſhed; the barrier and the embankment will touch only at the very bottom, and the greater the ſlope of the truſſes, the greater will be the vacant ſpace between the barrier and the embankment. But let us ſuppoſe, that the ſide of the barrier applied to the end of the finiſhed line of embankment is made perpendicular; then, though while the barrier continues applied to the embankment, there is no vacant ſpace, yet, whenever it is again to be removed, there will be a vacant ſpace between the two lines of embankment, equal in breadth to the baſe of the barrier. We have all along ſuppoſed that Mr. Loudon had built upon the vacant ſpace included within the barrier, when it was firſt ſet down, and that no difficulty occurred till it was neceſſary to remove the barrier: but a moment's reflection will convince the reader that it could not be placed at firſt, without being expoſed to the alternative we have already conſidered.

If ſuch be the objections to the uſe of the barrier, when placed within low-water mark, it is evident that *among* water it would be, if poſſible, ſtill leſs applicable; and yet Mr. Loudon recommends it, not only for the conſtruction of buildings beyond low-water mark, but alſo to be thrown acroſs rivers "to collect the whole body of water, and raiſe it to any height, for the purpoſes of machinery. It might be ſo contrived, as, with very little trouble, to be lowered in times when the water was abundant, and raiſed in ſeaſons when it was more ſcarce; and in times of great floods, by having hinges on the baſes of the truſſes, and alſo on the lower edge of the ſloping ſide of the barrier, the whole might be laid flat over on the channel of the river, and would thus be no obſtruction to the flood. Again, as this flood went off, the barrier might be raiſed at pleaſure." (p. 328-9.) In a note, he aſſerts that if this barrier had been employed at Stormontfield, in Perthſhire, £.60 would have ſaved £.6000. No perſon who has ſeen the Tay, near that place, and who takes his idea of this redoubtable barrier either from Mr. Loudon's deſcription, or his engraving of it, will admit for a moment the bare poſſibility that it could have been conſtructed at Stormontfield, ſo as to have been of the leaſt ſervice. This invention of Mr. Loudon's, truly, is of a very ſingular nature; it is ſo light and convenient, that it can be thrown over any river; it can be lowered or raiſed, or taken to pieces and laid gently down

at

at the bottom of the ſtream; and yet it is, at the ſame time, ſo heavy, ſolid, and ſubſtantial, that it will reſiſt the impetuoſity of a river of the greateſt volume and rapidity. If Mr. Loudon's deſcription of his barrier be complete and accurate, every objection we have brought forward lies againſt it: if it be imperfect, it ought not to have found admittance into his work. Indeed we cannot help regreting that Mr. Loudon, both for his own ſake, and for the ſake of the ſcheme he ſo ſtrenuouſly and plauſibly recommends, of gaining three millions of acres by embankments, had not aſcertained, by experiments on a large ſcale, both the expenſe attending them, and the practicability and preciſe advantage of the modes he has invented, before he publiſhed this part of his work.

On the whole, we are of opinion, that Mr. Loudon (at preſent at leaſt) promiſes to be of more utility to his country as a deſigner than as a civil engineer: his taſte has made more rapid advances than his judgment or knowledge; theſe appear to have been retarded and injured, while the former ſeems to have been cheriſhed and benefited by that ſanguineneſs and enthuſiaſm ſo natural to youth, of which Mr. Loudon evidently poſſeſſes a conſiderable ſhare.

ART. XVI. *The Sabbath; a Poem. The ſecond Edition, corrected and enlarged. To which are now added, Sabbath Walks.* 12mo. pp. 170. Price 5s. Edinburgh, printed for W. Blackwood; and for Cadell and Davies, London. 1805. *

THE firſt edition of "the Sabbath" was publiſhed in Edinburgh about ſix months ago; and, by the mere force of its intrinſic excellence, has already acquired a much higher degree of praiſe than generally falls to the lot of modern poetry. To thoſe who conſider figurative language and a poliſhed verſification as eſſential to the characteriſtics of a true poet, the author of "the Sabbath" will not appear to rank high. The ear is ſeldom delighted by the melodious flow of his verſe, or the harmonious variation of his pauſes. Few paſſages will be found in "the Sabbath," that are indebted for the pleaſure they give, to thoſe aſſociations which the uſe of figurative language, when ſkilfully and happily uſed, never fails to call up. His powers of intereſting the imagination and the heart are of a different kind. He ſeems to diſdain many of thoſe adventitious circumſtances by which the great object of poetry has been moſt generally and moſt effectually ſecured. Hence we may venture to predict, that though his

* Since this article was written, an advertiſement of the Sabbath, circulated in Edinburgh, has informed us that the author is Mr. James Grahame, Advocate.

poetry may appear to men of a very cultivated taſte deficient in ſome material reſpects, yet it will highly intereſt and pleaſe thoſe who are more converſant with the beauties of nature, and the ſentiments and feelings of the human heart, than with the language in which they have commonly been delineated. The author of "the Sabbath" has viewed nature and mankind with a poet's eye. He has marked and treaſured up thoſe circumſtances which ſtrongly characterize the appearance of nature in her moſt ſublime or moſt beautiful attire. Such emotions of the human heart, as ariſe from the moſt intereſting ſituations, he can depict by the ſelection and combination of thoſe minute but ſtriking incidents by which they were manifeſted; or by the adoption of thoſe ſentiments to which they naturally give birth. The poets of the preſent day, on the contrary, are more remarkable for trite and borrowed thoughts, clothed in words that convey no diſtinct or clear ideas, than for originality of ſentiment, or even felicity of expreſſion. Their language is ſo diffuſe, and drawn from ſo many different objects, that it is almoſt impoſſible to get a glimpſe of the ideas they meant to convey; we muſt generally remain contented with having our ears pleaſed with a ſucceſſion of harmonious ſounds. It is not, however, only with ſuch pretended poets that we would contraſt the author of "the Sabbath." He cannot be claſſed with any poet, unleſs, perhaps, with Cowper. Like him he has reſted his claims to the character of a poet, on his magic power to call up the beauties or ſublimities of nature by the ſelection and ſimple expreſſion of thoſe delicate and minute circumſtances which immediately realize the deſcription. Like him he has delighted to dwell on thoſe emotions which depend for their exiſtence and force on no uncommon powers or peculiar ſituations, but which all men have either felt in themſelves, or witneſſed in others. He excites our ſympathy by touching that chord which enters into the very nature of man, and which muſt in all men have frequently vibrated, during their actual connection and acquaintance with the world. He particularly excels in recalling the ſcenes and impreſſions of youth: and, however ſtrange and inexplicable it may appear, no one can doubt that the more philoſophical mind is not inſenſible to thoſe emotions, into the compoſition of which the recollection of the years of youth materially enter.

The ſubject which he has choſen ſeems particularly ſuited to the character of his genius. The feelings of devotion are evidently very powerfully preſent in his mind. They give an importance and a beauty to every object of nature, and intereſt him deeply in the ſituation of his fellow creatures. And to thoſe feelings, which muſt ſtill mix in the emotions even of ſuch as are no longer conſcious of their ſeparate exiſtence, "the Sabbath,"

Sabbath," in many paſſages, appeals with irreſiſtible force. The repoſe from toil which that day brings to the weary labourer, a repoſe, in which, from the ſtillneſs all around, nature ſeems to partake, is very beautifully deſcribed in the opening of the poem.

"How ſtill the morning of the hallow'd day!
Mute is the voice of rural labour, huſh'd
The ploughboy's whiſtle, and the milkmaid's ſong.
The ſcythe lies glitt'ring in the dewy wreath
Of tedded graſs, mingled with fading flow'rs,
That yeſter-morn bloom'd waving in the breeze:
Sounds the moſt faint attract the ear,—the hum
Of early bee, the trickling of the dew,
The diſtant bleating, midway up the hill.
Calmneſs ſeems thron'd on yon unmoving cloud."

The reader will immediately perceive that the author of "the Sabbath" is no copyiſt. He has proved beyond a doubt the falſity of the opinion, that every circumſtance, by which a poet could deſcribe the ſcenery of nature, was already become familiar and tireſome. This opinion neceſſarily gave birth to the attempt to vary the expreſſion, and thus to deceive the mind into pleaſure by the appearance of novelty. But to a perſon who can reliſh the beauties of genuine poetry, the mere felicity of expreſſion ſoon ceaſes to pleaſe: unleſs we can remember the very language of the poet, we are not able to recal thoſe exquiſite emotions which we experienced on reading his deſcriptions: we may retain accurately and clearly the idea, and yet may have loſt all the poetry: but in moſt of the beautiful paſſages in "the Sabbath," provided we remember the circumſtances the poet mentions, we can again feed our minds with pleaſure. This kind of poetry is the moſt rare, and of the higheſt order.

The poet not only ſelects thoſe images which are characteriſtic, in the ſtrongeſt and moſt pleaſing manner, of the ſcenes, ſituations, and emotions that he means to depict, but he glances his eye over every neceſſary or accidental quality in each image, and brings forward ſuch as will ſtill more forcibly and completely render his creation real. The author of "the Sabbath" has not frequently availed himſelf of the uſe of epithets; but thoſe which do occur, are exceedingly ſtriking and appropriate. As his object in the beginning of his poem is to to paint the ſtillneſs of nature, and the repoſe and relaxation which even the brute creation enjoy on the Sabbath, he marks thoſe circumſtances which moſt ſtrongly diſtinguiſh a Sabbath morning in the country; and by the ſelection of his epithets, contraſts the morning of this day with the days of labour and fatigue,

fatigue, "The dizzying mill-wheel refts." The horfe "rolls his bulk," rendered "ftiff and unwieldy" by that labour from which the Sabbath alone brings him an exemption.

But he chiefly celebrates the Sabbath as the "poor man's day," and appeals to every heart, that can feel the joys of domeftic life, in the following beautiful lines:

"On other days, the man of toil is doom'd
To eat his joylefs bread, lonely, the ground
Both feat and board, fcreen'd from the winter's cold,
And fummer's heat, by neighbouring hedge or tree;
But on this day, embofom'd in his home,
He fhares the frugal meal with thofe he loves;
With thofe he loves, he fhares the heartfelt joy
Of giving thanks to God."

After having defcribed the feelings and fentiments with which the "aged man, the bowed down, the blind led by the thoughtlefs boy," and "he who breathes with pain," "mingled with the young and gay" approach the houfe of God, and forcibly recalled thofe grand and fublime emotions with which the organ muft have filled every heart which ever liftened to its "diftant thunder notes," or "its diapafon full," he prefents to the mind's eye the fhepherd boy with his foul wrapt up in the perufal of the facred volume; you fee him clearly before you: the creation of the poet excludes for the time all idea or recollection of external objects.

"Stretch'd on the fward he reads of Jeffe's fon;
Or fheds a tear o'er him to Egypt fold,
And wonders why he weeps."

Who, from what has paffed in his own breaft, when the feelings were powerfully excited, does not immediately recognife the tranfcript of his own fenfations.

Hitherto no affociations have been rouzed but fuch as every reader of fenfibility and tafte muft have experienced in nearly an equal degree: but only thofe, who have been taught to look up with gratitude and veneration to their perfecuted and martyred anceftors, can enter into the full intereft, and transfufe into their own minds all the animation and enthufiafm that the poet evidently felt, when he wrote the defcription of a Sabbath conventicle in the time of the covenanters (p. 17, 20).

In the delineation of a female character, "the poor man's friend," mild in her difpofition, and refigned to the will of her heavenly Father, one of the few fimiles, that are to be found in this poem, occurs. It is fo completely original, fo ftrikingly appropriate, and contains fuch a vivid picture of a fcene, that feems hitherto unaccountably to have efcaped the notice of poets, that we cannot refrain from tranfcribing it.

—— "Thofe

——— " Thoſe eyes are cloſ'd:
Yet all her lovelineſs is not yet flown:
She ſmil'd in death, and ſtill her cold pale face
Retains that ſmile; as when a waveleſs lake,
In which the wint'ry ſtars all bright appear,
Is ſheeted by a nightly froſt with ice,
Still it reflects the face of heav'n unchang'd,
Unruffled by the breeze or ſweeping blaſt."

Our author is leſs happy and original in his deſcription of the ſuicide than in moſt other parts of his poem. The hurried and maddening thoughts that paſs through the mind of ſuch a character, ſeem to have met with nothing accordant in his reſigned and grateful temper. His thoughts here evidently labour more, and do not ſpring ſpontaneouſly from his imagination. But if he is not very happy in depicting the paſſions and feelings of the ſuicide, he has atoned amply for this failure, by the ſtriking picture which he has drawn of the dreary, deſolate, ſolitary ſpot, to which the gloom and horror of the ſuicide's mind irreſiſtibly leads him.

" Deep piny ſhades he loves, where no ſweet note
Is warbled, where the rook unceaſing caws:
Or far in moors, remote from houſe or hut,
Where animated nature ſeems extinct,
Where ev'n the hum of wand'ring bee ne'er breaks
The quiet ſlumber of the level waſte;
Where vegetation's traces almoſt fail,
Save where the leafleſs cannachs wave their tufts
Of ſilky white, or maſſy oaken trunks
Half buried lie, and tell where green woods grew,—
There on the heathleſs moſs outſtretch'd, he broods
O'er all his ever-changing plans of death."

As, to the religious man, the return of the Sabbath is particularly welcome, becauſe it lifts his mind above the cares and the misfortunes which ſurround him here, and makes it a partaker of the joys of another and a better world, our author has very judiciouſly placed moſt of his characters in thoſe ſituations which make the Sabbath indeed a day of reſt and religious pleaſure. Even to the debtor, though in priſon, the Sabbath " ſheds a beam of bliſs, though faint." In this part the reader will be confirmed in the opinion, which ſome of the former paſſages are calculated to ſuggeſt, that no regular plan was laid down, previouſly to the compoſition of the poem. The author evidently came to the taſk with his mind ſtored with images, and his heart powerfully oppreſſed with benevolent and pious feelings. His ſympathy for the poor, and his reverence for the inſtitutions of the Deity, preſented to his mind the Sabbath as a ſubject

a ſubject that would afford him many opportunities of painting the repoſe and joys which it brings to the religious labourer. But whenever any collateral topic, on which his imagination had long dwelt with peculiar intereſt or fondneſs, incidentally occurred, he appears not to have repreſſed its powers, but willingly to have indulged its excurſions. Hence the poem ſeems to want unity of deſign: but by us, who conſider a chaſte and vigorous imagination as capable of preſenting more rare and exquiſite pleaſure than a cool methodical invention, the want of unity of deſign is deemed a very trivial defect. Nor, perhaps, can it properly be alleged that unity of deſign is wanting; all that can be juſtly aſſerted is, that the ſeveral parts depend for their union rather on the aſſociations of the author's mind, than on any very obvious or neceſſary connection; and ſurely the beautiful paſſages which thoſe aſſociations have produced will conceal from all, that think not of the poet, or of the rules of poetry, but only of the ſcenes and characters forcibly and clearly placed before their mind, the violation of that law, which may, in ſome meaſure, ſupply the place, but ought never to be allowed to repreſs the workings, of an ardent and chaſte imagination.

The conſideration of that part of the poem which deſcribes the debtor in priſon gave riſe to the foregoing reflections. In this poet's mind a priſon naturally raiſes up the "death-doomed row:" the ſight of them points his declamation againſt the indiſcriminate ſeverity of our criminal law; and this, by contraſt, introduces a panegyric on the comparative mildneſs of the Jewiſh inſtitutions on this important ſubject. This, to many, will appear out of place: but the deſcription of the year of Jubilee, which it introduces, will prevent the remoteſt wiſh that this apparently extraneous matter had been omitted.

—— "Yes, the trumpet's voice,
The Sabbath of the Jubilee announc'd:
The freedom-freighted blaſt, thro' all the land
At once, in ev'ry city, echoing rings,
From Lebanon to Carmel's woody cliffs,
So loud, that far within the deſert's verge
The couching lion ſtarts, and glares around.
Free is the bondman now, each one returns
To his inheritance: the man, grown old
In ſervitude, far from his native fields,
Haſtes joyous on his way; no hills are ſteep,
Smooth is each rugged path; his little ones
Sport as they go, while oft the mother chides
The lingering ſtep, lur'd by the way-ſide flowers;
At length the hill, from which a farewell look,
And ſtill another parting look, he threw

On

On his paternal vale, appears in ſight.
The ſummit gain'd, throbs hard his heart with joy,
And ſorrow blent, to ſee that vale once more!
Inſtant his eager eye darts to the roof
Where firſt he ſaw the light; his youngeſt born
He lifts, and, pointing to the much-lov'd ſpot,
Says,—"There thy fathers liv'd, and there they ſleep."
Onward he wends; near and more near he draws:
How ſweet the tinkle of the palm-bower'd brook!
The ſun-beam ſlanting thro' the cedar grove,
How lovely, and how mild! but lovelier ſtill
The welcome in the eye of ancient friends,
Scarce known at firſt! and dear the fig-tree ſhade,
'Neath which on Sabbath eve his father told
Of Iſrael from the houſe of bondage freed,
Led thro' the deſert to the promiſed land;—
With eager arms the aged ſtem he claſps,
And with his tears the furrow'd bark bedews:
And ſtill, at midnight hour, he thinks he hears
The bliſsful ſound that brake the bondman's chains,
The glorious peal of freedom and of joy!"

The Sabbath worſhip of the Highland Emigrants in America;—the ideas of pleaſing melancholy which the return of the day of reſt recals to their mind; the paſſing image of thoſe ſcenes in their native country, in which their more youthful and more happy days were ſpent;—even the blind old man, who muſes on thoſe objects that are ſacred and dear to him, from having directed his viewleſs path, or ſupported his aged and weary limbs; and the boy, born during the voyage, who feels the deſire of "ſome far diſtant country ſtill called home," merely from the power of ſympathy;—all theſe intereſting and original circumſtances are painted to the life.

But not only to thoſe who partake of the ſociety of their friends and countrymen in a foreign land, but even to the "hapleſs man, remnant of a wreck," caſt on ſome deſert iſland, the Sabbath recals the ſcenes and pleaſures of his father's land.

Each ſeventh eve he marks the farewell ray,
And loves and ſighs to think,—that ſetting ſun
Is now empurpling Scotland's mountain tops;
Or, higher ris'n, ſlants athwart her vales,
Tinting, with yellow light, the quivering throat
Of day-ſpring lark, while woodland birds below
Chaunt in the dewy-ſhade.——

The peculiar religious ſentiments of the author, apparently, have induced him to effect the deliverance of this "hapleſs man," by means of a miſſionary ſhip. The firſt ſound of the religious

religious muſic which ſtrikes his ear from the approaching veſſel;

> Muſic remote, ſwelling at intervals,
> As if th' embodied ſpirit of ſweet ſounds,
> Came ſlowly floating on the ſhoreward wave:

and his inability from ſurpriſe and joy to hail the veſſel, though it ſeems as it would paſs away;

> —— To cry
> The wretched man in vain attempts, in vain,
> Powerleſs his voice, as in a fearful dream.

both theſe circumſtances are pourtrayed in a very ſtriking and beautiful manner.

The mention of the miſſionaries leads the author on to notice the effects of the converſion of the primitive chriſtians, and to contraſt the genuine ſpirit of the religion of Jeſus with the encouragement given to the ſlave trade, and with the frequent occurrence of wars among chriſtian ſtates. Several very animated paſſages occur in this part; but we cannot find room for a particular account or character of them. The image in the following line is highly characteriſtic, and gives a very forcible idea of that Sabbath, which alone is obſerved in a ſlave-ſhip; but from its very ſtrength and clearneſs it is perhaps objectionable.

> "The clotted ſcourge hangs hardening in the ſhrouds."

Although the leading and moſt peculiar feature in this poem is the power by which the more mild and gentle emotions of the heart are excited, yet there are paſſages in which the poet takes a higher flight, and ſhows himſelf capable of rouſing the more bold and maſculine paſſions. Local and temporary aſſociations may, indeed, lend their aid to give effect to the following paſſage; but who will not thank the poet for calling them up, and impreſſing them ſtill more deeply by the power of his muſe?

> "Spirit of Tell! and art thou doom'd to ſee
> Thy mountains, that confeſs'd no other chains
> Than what the wint'ry elements had forg'd,—
> Thy vales, where Freedom, and her ſtern compeer,
> Proud virtuous Poverty, their noble ſtate
> Maintain'd, amid ſurrounding threats of wealth,
> Of ſuperſtition, and tyrannic ſway.—
> Spirit of Tell! and art thou doom'd to ſee
> That land ſubdued by Slavery's baſeſt ſlaves;
> By men, whoſe lips pronounce the ſacred name
> Of Liberty, then kiſs the deſpot's foot?
>
> Helvetia!

Helvetia! had'ſt thou to thyſelf been true,
Thy dying ſons had triumph'd as they fell:
But 'twas a glorious effort, tho' in vain.
Aloft thy genius 'mid the ſweeping clouds,
The flag of Freedom ſpread; bright in the ſtorm
The ſtreaming meteor wav'd, and far it gleam'd;
But, ah! 'twas tranſient as the Iris' arch,
Glanc'd from Leviathan's aſcending ſhower,
When 'mid the mountain waves heaving his head.
Already had the friendly-ſeeming foe
Poſſeſs'd the ſnow-pil'd ramparts of the land;
Down like an avalanche they roll'd, they cruſh'd
The temple, palace, cottage, every work
Of art, and nature, in one common ruin.
The dreadful craſh is o'er, and peace enſues,—
The peace of deſolation, gloomy, ſtill:
Each day is like a Sabbath; but, alas!
No Sabbath ſervice glads the ſeventh day;
No more the happy villagers are ſeen,
Winding adown the rock-hewn paths that wont
To lead their footſteps to the houſe of prayer;
But, far apart, aſſembled in the depth
Of ſolitudes, perhaps a little groupe
Of aged-men, and orphan boys, and maids
Bereft, liſt to the breathings of the holy man
Who ſpurns an oath of fealty to the power
Of rulers choſen by a tyrant's nod.
No more, as dies the ruſtling of the breeze,
Is heard the diſtant veſper-hymn; no more
At gloamin hour, the plaintive ſtrain that links
His country to the Switzer's heart, delights
The looſening team; or if ſome ſhepherd boy
Attempt the ſtrain, his voice ſoon faultering ſtops;
He feels his country now a foreign land.

O Scotland! canſt thou for a moment brook
The mere imagination, that a fate
Like this can e'er be thine, that o'er thoſe hills,
And dear-bought vales, whence Wallace, Douglas, Bruce,
Repell'd proud Edward's multitudinous hordes,
A Gallic foe, that abject race, ſhould rule?
No, no! let never hoſtile ſtandard touch
Thy ſhore: ruſh, ruſh into the daſhing brine,
And creſt each wave with ſteel; and ſhould the ſtamp
Of ſlavery's footſtep violate the ſtrand,
Let not the tardy tide efface the mark;
Sweep off the ſtigma with a ſea of blood.

The poet's mind is evidently raiſed above its natural temperament by the contemplation and the proſpect of ſuch ſcenes,

ſcenes, and it gladly ſeeks repoſe on objects more congenial to its feelings. From war, therefore, he returns to the deſcription of a Sabbath evening in Scotland. The propriety and duty of devoting part of the Sabbath to viſiting and comforting the ſick, introduces an invocation to Health, which breaks off and is turned rather abruptly into an invocation to Muſic: this, if it werenot for the diſappointment we feel on perceiving the addreſs to Health not purſued, but yielding to a ſubordinate and incidental topic, might be claſſed among the moſt impreſſive and intereſting parts of the poem.

After the praiſe of the Beguin nuns, and a warm approbation of that inſtitution of the Roman catholic religion which devoted this ſiſterhood to the relief of the ſick, to "miniſter round th' uncurtain'd couch of pain and poverty:" the idea of our Saviour, who attended even to the ſickneſs of the body, fills the poet's mind with the contemplation of that day when an eternal Sabbath ſhall commence.

We have taken up ſo much room with the main poem of this volume that we cannot dwell long on the "Sabbath Walks." They are, however, inferior to no part of "the Sabbath;" on the contrary, there are in them fewer feeble and proſaic lines, and a greater proportion of beautiful deſcriptions of the ſcenes of nature, and living delineations of character and feeling.

Thoſe objects that would moſt ſtrikingly detain the ſenſes, and thoſe emotions that would moſt completely fill the ſoul of a religious man, in his walks on the Sabbath Day of Spring, Summer, Autumn, and Winter, are grouped in ſuch a happy manner, as to form a picture that ſpeaks emphatically to the beſt feelings of man. The author does not ſelect the ſublime and awful ſcenes of nature: her mild and ſimple beauties ſeem more congenial to his taſte. He does not content himſelf with the uſe of thoſe general expreſſions, which merely enable us to diſcern the ſeparate and diſtinct characters of the ſeaſons, or with a ſketch of the more bold and prominent features of each, but he limns with a delicate and happy pencil thoſe lines, which only a poet's imagination can "body forth," and in which the very ſoul of character dwells.—The following lines will confirm the juſtice of our remark.

——"What tho' the op'ning ſpring be chill!
What tho' the lark, check'd in his airy path,
Eke out his ſong, perch'd on the fallow clod,
That ſtill o'ertops the blade! What tho' no branch
Have ſpread its foliage, ſave the willow wand,
That dips its pale leaves in the ſwollen ſtream!
What tho' the clouds oft low'r! their threats but end

In

In ſunny ſhowers, that ſcarcely fill the folds
Of moſs-couch'd violet, or interrupt
The merle's dulcet pipe,—melodious bird!
He, hid behind the milk-white ſloe-thorn ſpray,
(Whoſe early flowers anticipate the leaf,)
Welcomes the time of buds, the infant year."

Spring Walk.

"How peaceful every ſound!—the ring-dove's plaint,
Moan'd from the foreſt's gloomieſt retreat,
While every other woodland lay is mute,
Save when the wren flits from her down-coved neſt,
And from the root-ſprigs trills her ditty clear—
The graſshopper's oft pauſing chirp,—the buzz,
Angrily ſhrill, of moſs-entangled bee,
That, ſoon as loos'd booms with full twang away;—
The ſudden ruſhing of the minnow ſhoal
Scar'd from the ſhallows by my paſſing tread."

Summer Walk.

We cannot reſiſt the temptation of laying before our readers one more extract: the picture which it contains is extremely intereſting, and ſeems, while we are viewing it, infuſed with life and intelligence.

"But liſt that moan! 'tis the poor blind man's dog,
His guide for many a day, now come to mourn
The maſter and the friend—conjunction rare!
A man indeed he was of gentle ſoul,
Tho' bred to brave the deep: the lightning's flaſh
Had dimm'd, not clos'd, his mild, but ſightleſs eyes.
He was a welcome gueſt thro' all his range;
(It was not wide)—no dog would bay at him;
Children would run to meet him on his way,
And lead him to a ſunny ſeat, and climb
His knee, and wonder at his oft-told tales.
Then would he teach the elfins how to plait
The ruſhy cap and crown, or ſedgy ſhip:
And I have ſeen him lay his tremulous hand
Upon their heads, while ſilent mov'd his lips.
Peace to thy ſpirit, that now looks on me,
Perhaps with greater pity than I felt
To ſee thee wand'ring darkling on thy way."

Autumn Walk.

The principal fault with which the author is chargeable is the introduction of thoughts exceedingly feeble and proſaic, relieved by no luxuriancy or grandeur of diction, and by no modulation or harmony of verſe. He too often neglects or violates the laws of Engliſh metre, and ſcarcely ever takes advantage of that variation of pauſe by which blank verſe

may be made so completely to fill and enchant the ear. In the finer passages of his poems these blemishes are overlooked: we are so enraptured with his descriptions that the words by which they are conveyed are not scrupulously noticed. But more attention ought to have been paid to the rhythm and pauses of those lines that were necessary to give "breathing time" to the poet's imagination: these should have been wrought, with the most scrupulous care, into polished correctness and harmonious flow; and the aid of figurative expressions might, properly and happily, have been introduced to support and adorn such thoughts as were not in themselves highly poetical.

The notes to "the Sabbath," and the "Sabbath Walks," occupy nearly one half of the volume. Of these we cannot speak in terms of high commendation. Those which are mere extracts from the Scriptures, the Cloud of Witnesses, and the Debates on the Slave Trade, seem to be needlessly or improperly introduced. Few will read them with attention. It is so obvious that a reference to the passages taken from the Scriptures, and a more sparing introduction of the account of the Covenanters, and of the arguments against the Slave Trade, would have fully answered the purpose of illustration, that a suspicion, which it requires all the admiration and respect created by the perusal of the poem to keep down, is apt to enter the mind of the reader, that the bulk rather than the value of the volume was regarded in their insertion.

The original notes are occupied with declamations against the slave trade, the criminal laws of England, Bonaparte, and the depopulation of the Highland districts by the introduction of the sheep husbandry. The style of these presents a curious contrast to that of the author's poetry. They are highly and constantly figurative, but they do not appear to flow freely. They are laboured and over loaded. The mind of the author appears to have been continually on the stretch. If we except his declamation against the Slave Trade, we never forget the author in his prose compositions. On this subject we can however commend not only his style but his sentiments. On topics of political economy he feels too strongly to see clearly or reason well. But on the slave trade the feelings of the most ardent mind, and the conclusions of the most cool and comprehensive judgment, must meet nearly in the same point. Had we not already quoted so many passages from the poem, we should with pleasure have extracted part of this note. Of the note against Bonaparte we cannot approve; it is by no means well-written, and it is entirely out of place. If the author wishes

wiſhes to expreſs his merited deteſtation of the Corſican, and to rouſe the hatred or the contempt of his countrymen againſt him, let him vent his feelings in the language of poetry;—in that language, in which his imagination ſeems to expreſs itſelf with the moſt eaſe, dignity, and effect. Let him not introduce a Philippic againſt the Emperor of the French, under the patronage of a ſubject ſo ſerious and ſolemn as the Sabbath. We cannot brook the idea, which we are afraid many will maliciouſly indulge, that the author of the Sabbath has ſtooped to court popularity by ſuch indirect and improper means. He ſtands on too firm ground to need to intrench himſelf in the paſſions of the multitude. While the ſcenery of nature pleaſes, and man is a ſocial and a dependent being, he may reſt ſecure of approbation, for his poetry reflects that which is not tranſient, but cloſely interwoven with the very conſtitution of our nature.

ART. XVII. *Recreations in Mathematics and Natural Philoſophy: Firſt compoſed by M. Ozanam, lately re-compoſed by M. Montucla, and now tranſlated into Engliſh, and improved with many Additions and Obſervations, by Charles Hutton, LL. D. and F.R.S.*

(Continued from page 12.)

THE optical part, which is the fourth in order, contains a variety of amuſing particulars reſpecting light, viſion, burning-glaſſes, optical inſtruments, and microſcopic objects. There is much inaccuracy in the ſtatement of an experiment reſpecting a burning mirror (p. 240). "In the Memoirs of the French Academy of Sciences for 1726, we read of a plane mirror, of 12 inches ſquare, reflecting the ſun's rays to a concave mirror 16 inches in diameter, in the focus of which bodies were burnt at the diſtance of 600 paces." Hence we might infer that the focal diſtance of the concave mirror was 600 paces; the fact, however, was, that the concave mirror was at the diſtance of 600 *feet*, not *paces*, from the plane mirror, and that its focal length was but ſmall.

The ſatellite of Venus ought not to have been mentioned (p. 277) as "often ſeen, and often loſt." Since the obſervations of the tranſit of Venus, and the late improvements of teleſcopes, there can ſurely remain no doubt that thoſe who fancied they had found ſuch a ſatellite, were totally miſtaken.

In eſtimating the magnifying power of a globule of glaſs, ſome authors have compared the diſtance of the focus from the neareſt ſurface, with the diſtance at which the object can be viewed by the naked eye. Mr. Montucla employs the diſtance of the focus from the remoteſt ſurface (p. 287, 288), which is five times as great, and conſequently makes the magnifying power only one fifth as great as theſe authors. The truth is between both theſe eſtimates: the centre of the globule is in fact the point to be conſidered as determining the focal length: ſo that "a globule $\frac{1}{2}$ a line in diameter," will magnify not "153" times only, but 256.

The effect of the diſtortions produced by angular glaſſes, are illuſtrated by an account of ſeveral paintings intended to be viewed through them. "A picture by Amadeus Vanloo (p. 297), was ſhown in the year 1759, in the exhibition room of the Royal Academy of Painting. To the naked eye it was an allegorical picture, which repreſented the Virtues, with their attributes, properly grouped; but when ſeen through the glaſs, it exhibited the portrait of Louis XV." We are afterwards informed, that the glaſs unfortunately contained too much alkali in its compoſition, and having loſt its poliſh by long expoſure to the air, could never be replaced with ſufficient accuracy.

The viſionary ideas of Caſtel and others, reſpecting ocular muſic, are very juſtly mentioned (p. 313) as wholly unworthy of attention: but it ſhould have been obſerved, at the ſame time, that the analogy which Newton ſuppoſed to exiſt between the muſical diviſion of the monochord, and the diſtribution of the colours in the priſmatic ſpectrum, has been ſhown by later experiments to be wholly imaginary.

A curious experiment on colours is given in the 59th problem. It is aſſerted, that by looking at a white object through glaſſes of different colours, one applied to each eye, at the ſame time, it will appear of the ſame colour as if both glaſſes were combined, and applied together to a ſingle eye. It will be found, however, on making the experiment, that an object thus ſeen will often appear to change its colour, ſometimes, indeed, in quick ſucceſſion, accordingly as the momentary exertion of either eye is the more vigorous; and it rarely happens that it continues for any length of time to appear of the colour which reſults from the combination of the two glaſſes. A very ſtriking phenomenon may be obſerved after continuing this experiment for a little time; if the glaſſes be laid aſide, the ſame object will appear of different colours when we view it ſingly with each eye in ſucceſſion.

The

The illuſion, by which a concave impreſſion on a ſeal may be made to appear in relief, is very incorrectly ſtated in the 63d problem. This apparent reverſion never happens but when the image is inverted by the microſcope, ſo that the light and dark parts of the engraving acquire a ſituation with reſpect to the window, or candle, preciſely ſimilar to thoſe of a relieved object viewed without a microſcope. The phantaſmagoria, which has lately occupied ſo much of the public attention, ought, perhaps, to have been noticed in this place.

The 65th problem relates to "a phenomenon either not obſerved, or hitherto neglected by philoſophers." It is true, indeed, that ſeveral mathematicians of eminence, have ſuppoſed the eye either perfectly achromatic, or not ſenſibly affected by the different refrangibility of colours; but others have noticed the fact here ſtated, which ſhows that in certain caſes of indiſtinct viſion, the effects of colour from refraction become very evident. In the 67th problem, it is obſerved with truth, that the time of eight thirds, which has been aſſigned to the duration of the impreſſion of a viſible object on the retina, can only be accurate with reſpect to objects of a certain definite brightneſs. On this ſubject ſome intereſting remarks may be found in Watſon's Eſſay on Time.

The compoſition of the globules of the blood from "ſix ſmaller globules, united together" (p. 360), which was long ago aſſerted by Leeuwenhoeck, has been found by later obſervers to be void of foundation.

The fifth part of the work relates to acouſtics and to muſic. With reſpect to the velocity of ſound, it is obſerved (p. 381), that, according to Derham, the temperature of the air has no effect on it; "but notwithſtanding what Derham has ſaid, we can hardly be perſuaded," ſays Mr. Montucla, "that the velocity of ſound is not affected by the temperature of the air." It is now well known, from the experiments made by Bianconi, and related in the hiſtory of the Inſtitute of Bologna, that a very material difference may be diſcovered between the velocities of ſound in hot and in cold weather.

It is aſſerted (p. 387), that twelve notes of inſtrumental muſic are the moſt that can be diſtinguiſhed in a ſecond; but we have often counted ſixteen, or more; and we have reaſon to think that a ſingle note may often be diſtinguiſhed, if it precedes another only by one thirtieth of a ſecond, ſo that an echo may ſometimes be obſerved when the diſtance of the reflecting ſurface is little more than 20 feet from the ſpeaker. The hiſtory of the echo at Roſeneath, which is ſaid to repeat the notes of a trumpet "a third lower" (p. 389), was never

related by an accurate obſerver, and is in fact unqueſtionably fabulous.

"Mr. Sauveur found (p. 390), that an open organ-pipe, five feet in length, makes 100 vibrations per ſecond; conſequently one of four feet, which gives the triple octave below, and the loweſt ſound perceptible to the ear, would make only $12\frac{1}{2}$." It is obvious that inſtead of four feet, we muſt here read forty.

An Engliſh editor ought to have obſerved that Dr. Wallis, or ſome of his pupils, firſt made, in the year 1677, the experiment of ſhowing the diviſion of a muſical chord into aliquot parts, by putting ſmall pieces of paper on it; which is attributed by Montucla (p. 401) to Sauveur, who exhibited it to the Academy in 1700. It is not true that "the twelfth and ſeventeenth" of the fundamental note, are mixed with it in "the ſound of a bell" (p. 406): the obſervation is juſt with reſpect to the ſounds of chords and of pipes, but not with reſpect to the vibrations of elaſtic ſurfaces, or veſſels. This remark is ſufficient to confute the opinion, "that theſe vibrations exiſt only in the air" (p. 411), beſide ſeveral other objections which might be made to the aſſertion.

An amuſing, if not a credible ſtory is told (p. 433), of the effects of muſic.

"The moſt ſingular fact, however, is that mentioned by Bonnet in his Hiſtory of Muſic. This author relates, that an officer being ſhut up in the Baſtille, had permiſſion to carry with him a lute, on which he was an excellent performer, but he had ſcarcely made uſe of it for three or four days, when the mice iſſuing from their holes, and the ſpiders ſuſpending themſelves from the ceiling by their threads, aſſembled around him to participate in his melody. His averſion to theſe animals made their viſits at firſt diſagreeable, and induced him to lay aſide his recreation; but he was ſoon ſo accuſtomed to them, that they became a ſource of amuſement. We are informed by the ſame author, that he ſaw in 1688, at the country ſeat of Lord Portland, the Engliſh Ambaſſador in Holland, a galiery in a ſtable, employed, as he was told, for giving a concert once a week to the horſes, which ſeemed to be much affected by the muſic. This, it muſt be allowed, was carrying attention to horſes to a very great length. But it is not improbable that this anecdote was told to Bonnet by ſome perſon in order to make game of him."

In the eleventh article of this ſubdiviſion, the theory of wind-inſtruments is borrowed from Euler. But the author appears to have read only Euler's early work on the Theory of Muſic, in which the ſubject is very erroneouſly treated, and which has been ſuperſeded by the later diſcuſſions of the ſame author,

author, as well as by the elegant inveſtigations of Bernoulli, publiſhed in the Memoirs of the Academy of Paris.

It is propoſed, Art. XIV. to apply the eſtimation of the note produced by a given chord to the meaſure of its mechanical tenſion, either by two weights, or by one weight and a fixed point; and this "ingenious application of muſic to mechanics," is ſaid to be the invention of Diderot. But the "invention" is at leaſt as old as Vitruvius; for he expreſsly requires, when he is enumerating the neceſſary accompliſhments of a complete architect, that he ſhould have a knowledge of muſic, in order to examine the ſtrain of the different ropes employed in moving weights, by means of the tones which they emit when ſtruck; ſince, when the tone is rendered very acute by too great a tenſion, the rope bears a greater proportion of the ſtrain than its ſhare, and is in danger of giving way.

The third volume comprehends the ſubjects of aſtronomy, geography, and chronology, making the ſixth part; gnomonics and navigation, which are the ſeventh and eighth in order, architecture the ninth, and pyrotechny the tenth. Upon all theſe ſubjects we find a very uſeful collection of information, often amuſing, and generally important. In the part which relates to gnomonics, one of the problems contains a refinement not commonly introduced into the conſtruction of dials. It is obſerved that every dial is in ſome meaſure affected by the atmoſpheric refraction of the ſun's rays, and that near ſun-riſe, or ſun-ſet, the error may amount to as much as three or four minutes: a method of avoiding this error is deſcribed, but it is only applicable to ſuch dials as indicate the hour by the ſhadow of a given point of the ſtile.

The diviſion of the day into hours, as employed by the Jews, the Babylonians, the Italians, and the inhabitants of Nuremberg, is mentioned under the ſame head (p. 334). The Jews divide the time between ſun-riſe and ſun-ſet into twelve hours, beginning at ſun-riſe; the Babylonian hours were of equal length, beginning at ſun-riſe, and being numbered to 24; the Italians reckon 24 from ſun-ſet to ſun-ſet. The hours of Nuremberg are not explained, but we find in a German author, that there are ſome clocks in that city which ſtrike from one to eight in the ſhorteſt days, and from one to ſixteen in the longeſt, beginning always at ſun-riſe, nearly in the ſame manner as the Babylonian hours were reckoned.

In ſpeaking of navigation, the author appears to confound the pole of the earth with the magnetic pole, to which the needle points. "If a veſſel ſhould reach one of the poles," ſays Mr. Montucla (p. 386), "it is probable that the compaſs would become uſeleſs, or, as the ſailors ſay, run entirely mad."

This is what really happens in ſome parts of Hudſon's Bay; and at the pole of the earth the needle would probably point towards Hudſon's Bay.

The mode of paſſing a river in South America, by means of ropes, is deſcribed in the ninth part (p. 430). Inſtead of this hazardous contrivance, a wooden bridge was propoſed by the author when he was on the ſpot. We have ſeen this paſſage elſewhere attributed to Ozanam, although in the imperfect ſketch of the life of Ozanam, prefixed to theſe recreations, no mention is made of his having been in South America; and no diſtinction is here preſerved in the text between the parts that have been ſucceſſively introduced by the different authors.

"In regard to the expanſion of inflamed gun-powder," ſays Mr. Montucla (p. 446), "is it occaſioned by the air interpoſed between its grains, or by the aqueous fluid which enters into the compoſition of the nitre? We doubt much whether it be the air, as its expanſibility does not ſeem ſufficient to explain the phenomenon; but we know that water when converted into vapour by the contact of heat, occupies a ſpace 14,000 times greater than its original bulk, and that its force is very conſiderable."

To this Dr. Hutton objects, that

"Montucla ſeems to have miſſed the true cauſe of the expanſive force of fired gunpowder, the diſcovery of which is chiefly due to the Engliſh philoſophers, and particularly to the learned and ingenious Mr. Robins. This author apprehends, that the force of fired gunpowder conſiſts in the action of a permanently elaſtic fluid, ſuddenly diſengaged from the powder by the combuſtion."

It is remarkable, that the opinion of Montucla, which was largely diſcuſſed in the Memoirs of the Inſtitute of Bologna, has alſo been adopted and copiouſly inveſtigated by Count Rumford, who ſeems to have conſidered it as a new theory. Count Rumford has however neglected, in eſtimating the quantity of water that would be neceſſary, to conſider that the denſity of ſteam, like that of all other elaſtic fluids, muſt depend on the preſſure to which it is ſubjected. Hitherto no ſatisfactory experiment has been made to aſcertain the denſity of ſteam in any circumſtances with ſufficient preciſion.

In the department of pyrotechny, or fire-works, we ſeek for little beyond amuſement. It is true, indeed, that rockets have often been uſed, not only for ſignals, but alſo in ſurveying: and the method uſed by the Chineſe for making their brilliant fire, is here quoted from Father d'Incarville. It conſiſts in mixing with gunpowder, or its component parts, in different proportions, ſome caſt iron, reduced by trituration and dry ſifting to a very fine powder. The light of this compoſition

poſition nearly reſembles that which is produced by burning an iron wire in oxygen gas.

Natural philoſophy in general, magnetiſm, electricity, and chemiſtry, furniſh the materials which conſtitute the fourth volume of the work. The properties of matter, and of particular kinds of matter, the effects of heat and cold, and ſome of the phenomena of meteorology, are the ſubject of the eleventh part.

We are told (p. 13), that thoſe perſons are miſtaken, "who believe that the water of the Mediterranean is more or leſs elevated than that of the Red Sea." This obſervation might have been corrected from the ſurveys made by the French in Egypt, who aſcertained that the waters of the Red Sea are fourteen or fifteen feet higher than thoſe of the Mediterranean. The difference may have been ſomewhat over-rated; but it is eaſy to imagine that the general current of the Pacific Ocean, running from eaſt to weſt, muſt have ſome effect in filling up the Red Sea.

It is rather ſurpriſing to find in the ſame page, that notwithſtanding the accurate experiments of Canton and of Zimmerman, the authors of the Recreations have followed the old doctrine of the abſolute incompreſſibility of water, erroneouſly inferred from the tranſudation of this fluid through a ball of gold, as obſerved by the Academicians del Cimento.

It is aſſerted (p. 47), that "the maſſes of Mercury, Venus, and Mars, cannot be aſcertained, becauſe no bodies circulate around them." It might however have been added, that although we cannot aſcertain their maps with any great preciſion, yet Laplace has been able to deduce from the planetary perturbations an eſtimate ſufficiently accurate of the denſities of Venus and Mars.

The doctrine of central fire within the earth is aſſerted (p 108), without any thing like a ſatisfactory argument: the mean temperature of the earth at any moderate depth is very nearly the ſame as the mean temperature of the air; if there were a central fire it ſhould be much higher; and the earth ſhould become warmer as we deſcend deeper, which is not found to be the fact. Another opinion of Buffon, reſpecting the origin of the planets, is very judiciouſly refuted (p. 116.) Of this hypotheſis, as adopted by Dr. Darwin, we have already expreſſed a ſimilar opinion, in our review of his Temple of Nature. See vol. i. p. 445.

The theory of Prince Rupert's drops is ſaid (p. 146), to be "ſtill very obſcure." Had the author been acquainted with the works of our moſt ingenious countryman, Dr. Hooke, he could ſcarcely have called it very obſcure. The unequal tenſion

tenſion of the different parts of the glaſs is ſufficient to explain the exiſtence of a latent force, which is called into activity as ſoon as its equilibrium is deſtroyed.

The perpetual motion of two fluids of different ſpecific gravities in an inverted capillary ſiphon, as propoſed by John Bernoulli, appears to have puzzled Mr. Montucla, for he ſays only (p. 188) that he is "ſtrongly inclined to believe that it would not ſucceed." It is obvious that the heavier fluid would ſettle in the loweſt part of the ſiphon, and if there were any filtre which could retain it, and tranſmit only the lighter, the ſame filtre would prevent the heavier from exerting its whole preſſure on the lighter, ſo as to force it above the level.

The common experiment of touching the bottom of a kettle of boiling water with the finger is related (p. 203), and the author aſſerts that he has repeated it with complete ſucceſs; the bottom of the kettle remaining cool for ſome time after the ebullition had ceaſed. We have however found that if the kettle is perfectly clean the finger is burnt upon the firſt application; we are therefore inclined to believe, that the whole fallacy is owing to the ſlowneſs with which heat is conducted by ſoot.

We have not been able to melt a piece of lead within a piece of paper "without the paper being burnt," until the whole is withdrawn from the candle (p. 205); we do not, however, mean to aſſert that it is impoſſible to do it.

It is not true that "the ſound of a flute is higher during dry than during moiſt weather" (p. 210), except when the moiſture is combined with cold: but with reſpect to ſtrings of catgut, which are to be employed as hygrometers, the obſervation is well founded. The difficulty of obtaining fixed points for hygrometers, of which the author complains, (p. 211), has been ſufficiently removed by De Luc, Sauſſure, and others; their beſt hygrometers are not deſcribed in this work.

The curious account of the lake of Zirknitz, in Carniola (p. 247), is ſufficiently amuſing to be copied here. "This lake is about three French leagues in length, and one and a half in breadth, having a very irregular form. The ſingularity of this lake conſiſts in its being full of water during the greater part of the year: but toward the end of June, or the firſt of July, the water runs off by eighteen holes, or ſubterranean conduits, ſo that what was the abode of fiſh, and abundance of aquatic fowls, becomes the haunt of cattle, who repair thither to paſture on the graſs which is found there in great plenty. Things remain in this ſtate for three or four months, according to the conſtitution of the year; but after that

that period the water returns through the holes by which it had been abſorbed, and with ſo conſiderable a force that it ſpouts up to the height of ſeveral feet, ſo that in leſs than twenty-four hours the lake has reſumed its former ſtate." The explanation of theſe phenomena from the effects of ſubterraneous caverns and ſiphons, may be found either in the works quoted by the author, or in the Philoſophical Tranſactions. Abr. ii. 308.

The account of the divining rod (p. 259), deſerves to be copied at full length, as an intereſting ſpecimen of the kind of information which is to be found in many parts of this work.

" The divining rod is nothing elſe than a forked piece of hazle, the two branches of which muſt be 15 or 18 inches in length, and form an angle of 30 or forty degrees. The two branches are held in the hands in a certain manner, ſo that the trunk or middle is turned toward the heavens. Some perſons, it is ſaid, are endowed with ſuch a property, that if they hold this rod as above deſcribed, it tends by a violent effort to turn its trunk downward, when in the proximity of a ſpring, or of precious metals concealed in the bowels of the earth, or ſtolen money, &c. Nay, ſome even have aſſerted, that it has pointed out, in this manner, the traces of criminals, robbers, or aſſaſſins. An inſtance of this credulity, too memorable to be omitted, took place at Lyons, in conſequence of a murder committed on the 5th of July, 1692. A retailer of wine and his wife were both found murdered, as appeared by blows with a hedging bill, and their money was carried away from a ſhop in which they uſually reſided. As no traces were found of the aſſaſſin, recourſe was had to James d'Aymar, a native of Dauphiné, who about that period had acquired great reputation and many partiſans, by means of his divining rod. D'Aymar having cauſed himſelf to be conducted to the ſpot where the murder had been committed, was ſcarcely entered, when he fell into a ſort of fit. As ſoon as he had recovered, after making a thouſand contortions and movements with his rod, he promiſed to follow the track of the aſſaſſins. He took the rod in his hand, and, accompanied by a clerk of the police, and ſome horſemen of the maréchauſſée, proceeded to Beaucaire, purſuing the ſame route which he ſaid the aſſaſſins had taken. When he arrived at that city, ſtill guided by his rod, he went ſtraight to the gate of the priſon, in which it was cuſtomary to confine thieves during the time of the fair. On the gates being opened twelve or fifteen priſoners were preſented to him, but the rod turned only to a hump-backed perſon, who had been caught in the act of thieving. He was conducted to Lyons, confeſſed his crime, and was broken on the wheel in the Place des Torreaux.

" The aſſaſſin, before he expired, confeſſed that there were two accomplices, who had been with him at Beaucaire, and who had quitted that city when they heard of his being arreſted; but that he did

did not know whither they were gone. "I shall find them dead or alive," said d'Aymar, "and again taking his rod, proceeded to Beaucaire, with the same escort as before. When he arrived at the town he asserted that the assassins had directed their course to Toulon; he pursued them thither, but at Toulon his rod indicated that they had embarked; a vessel was sent in search of them, but they were not found: and d'Aymar and his companions returned to Lyons.

"This small check did no injury to d'Aymar's reputation. The people were persuaded that he could have traced them to the end of the world, had it been lawful to arrest them in foreign kingdoms. All these facts and a great many more equally surprising, were submitted to the examination of Malebranche. The public wished to know from that great man, whether they could be explained physically, in the same manner as the motion of the magnetic needle to the two poles. Malebranche, naturally credulous, admitted them without distinction, and after various reasonings concluded that they could be explained only by an explicit or at least implicit compact with the evil spirit. From Lyons, d'Aymar proceeded to Paris, to which he was invited by the prince of Conti, who was desirous of having an opportunity of being a witness to the power of the rod which he employed. The prince carried him to the terrace of Chantilly, made him take his rod in his hand, and expected that it would turn speedily, because the river passes below that terrace. This however was not the case; for the rod, in whatever manner disposed, still remained motionless. The prince caused gold, silver, and flints, to be concealed in four different places of one of his gardens, and the rod, accustomed to indicate metals, turned only to the bag filled with flints, and placed at a considerable depth in the earth. The prince having been informed that an *archer de guet* had been assassinated in the rue St. Denis, repaired thither, accompanied by the king's advocate, and d'Aymar. After care had been taken to blindfold him, he was carried several times past the place where the murder had been committed, and though it was covered with blood, the rod still remained motionless. D'Aymar was therefore expelled as a cheat and impostor.——There is reason to think that he had been a witness of the crime committed by the two villains at Lyons, and that being desirous to acquire a great name in the art of directing the divining rod, he followed them to Beaucaire, being acquainted with their project of remaining there during the fair; that he returned speedily to Lyons to announce his secret, and in this manner had followed their track."

The results of the modern experiments on magnetism appear to be wholly unknown to the authors: we are told (p. 280), that Musschenbroek "thought he observed," that the attractive force of the magnet "decreased in the quadruple ratio, or as the 4th powers of the distances.—This action perhaps decreases still more rapidly." The truth is, that the actions of the magnetic fluid have been shown to vary accurately

rately in the inverſe ratio of the ſquares of the diſtances. The declination of the needle in London is ſtated (p. 290), as amounting to 22° 30′ in 1800; this is too little; it has been for ſeveral years about 24°, and is now 24° 10′, December 1804.

The electrical feaſt of Dr. Franklin, on the banks of the Schuylkil (p. 367), where a turkey was killed, and the ſpit turned by means of electricity, muſt be allowed to have been exceeded by the Epicurean electricians of London, who ſome years ſince had a public dinner, for which a ſheep was killed by ſimilar means.

The "combination" of fixed alkali and quick-lime, mixed in a ſufficient quantity of water, and filtered, "which when cold is liquid and tranſparent, but which when warm becomes thick and opake" (p. 430), can be nothing but cauſtic alkali, which attracts moiſture, and deliqueſces when it is cold, and may be dried and rendered opake by the application of heat.

The pronunciation of Lampyris, as employed by Dr. Darwin, (ſee our firſt volume, p. 444,) is confirmed by the authority of Huet, biſhop of Avranches—"ſentes luſtrat Lampyris opacos" (p. 468). The phoſphoreſcence of the eyes of cats and owls is aſſerted (p. 471), without a reference to any accurate experiments. We have already made a ſimilar remark in our review of Dumas's phyſiology (ſee our firſt volume, p. 424). The old and offenſive method of making phoſphorus, is copied at full length from Margraff (p. 490); and no notice is taken of the improved proceſs, in which the phoſphorus is extracted from bone-aſh.

The whole of theſe remarks will be ſufficient to ſhow that the Engliſh editor has been too often inattentive to the improvement of the work; and will alſo, we truſt, be found to contain ſome conſiderations which may be new to our readers. It is not by any means our intention to depreciate the book which we have been examining; it contains a vaſt collection of curious matter, from which every reader of judgment may ſelect ſomething that intereſts him. On inaccuracies of language we think it unneceſſary to dwell, but we cannot avoid noticing the word "ſquarable," often uſed for *quadrable* (i. 389); "cube foot," for *cubic* foot (ii. 28); "vouſſoirs," for the ſtones or blocks of an arch (iii. 402), without any apology for employing a French word; and what is every way inexcuſable, "ſimilor" for *braſs*, in Ellicott's table of the expanſion of metals, taken from the Philoſophical Tranſactions. Perhaps the tranſlator had no French dictionary better than Boyer's at hand; in that of the academy, or in Richelet's, he

he might have found the word. We muſt alſo obſerve, that no work of ſo miſcellaneous a nature ought to be publiſhed without a copious index.

Art. XVIII. *The Hiſtory of England, from the Acceſſion of King George III. to the Concluſion of Peace in* 1783. *By John Adolphus, Eſq. F. S. A.* 3 Vols. 8vo. pp. 1788. Price 1l. 11s. 6d. Cadell and Davies, London, 1804.

To write the annals of a living ſovereign is a taſk of great difficulty and delicacy. In the proſecution of ſuch an undertaking, an author is liable to the imputation of ſervile flattery when he praiſes, and to that of factious turbulence when he blames. Without any violation of candour we may aſſert, that the conſideration of this circumſtance tends to reſtrain that freedom which is abſolutely requiſite to the compoſition of impartial hiſtory. The deſire of obtaining that popular applauſe which is ſo often excited by virulent aſperſions upon thoſe who have held the reins of power, and the ambition of paying court to eminence of ſtation, are ſtill more powerful motives which too frequently tempt the narrators of recent political events to deviate more or leſs from the truth. And moreover, the preſent opinions of any individual being unavoidably modified by his antecedent notions, where ſhall we find the hiſtorian who is ſo entirely free "*à ſpe aut metu, aut partibus reipublicæ*" as to be qualified to view a political tranſaction, which has formerly agitated his feelings, with eyes unobſcured by the miſts of prejudice? Of theſe difficulties Mr. Adolphus ſeems to have been well aware, and he has evidently laboured (and in our opinion with conſiderable ſucceſs) to ſurmount them, by induſtriouſly cultivating in his own mind the principles of candour. Our readers will become beſt acquainted with the bent of his endeavours, and the reſult of his views on this topic, by the peruſal of the following extract from his preface:

"It may ſtill be doubted whether the period is yet arrived when the conſpicuous perſons of the preſent reign can be ſo impartially reviewed. The heat of party conteſt has rendered the public ſo familiar with calumniatory declamation, that the hiſtorian incurs ſome riſk in venturing to diſmiſs from his vocabulary certain abuſive phraſes, or in preſuming to doubt of certain ſuppoſed political facts, ſo gravely advanced, and ſo forcibly urged by the wiſe and the eloquent. He expoſes himſelf to a ſtill greater hazard in attempting to reſcue from long-accredited imputations, characters, whom the enmity of faction, and the greedy credulity of the public, have conſecrated to obloquy, and in venturing to ſhew,

ſhew, that in many inſtances unblushing calumny has been miſtaken for ſober truth, faction for patriotiſm, and ſelfiſhneſs for public ſpirit.

"Such has often been the nature of my taſk; in the execution of which it has been my endeavour to avoid a too common error: I have not, in order to illuſtrate the principles and conduct of one man whom I thought injured, retaliated on his opponents. I have been ſlow in imputing to individuals thoſe baſe deſigns againſt either Liberty or Government, which have been ſo profuſely aſſigned to them. I have generally found in the ſtate of party connexions, and the legitimate objects of honourable ambition, ſufficient means of accounting for the actions of men either poſſeſſed of, or ſtruggling for power, without feigning, as a cauſe of their conduct, an exceſs of mental depravity or political turpitude, which is characteriſtic neither of the nation nor the times on which I have treated."

Toward the concluſion of his prefatory obſervations Mr. Adolphus intimates, that "he does not court the aid of party to reſcue his hiſtory from cenſure, ſince it is ſo compoſed that he knows not to what party he ſhould apply for that purpoſe." We muſt remark that this aſſertion ought to have been ſomewhat qualified. It is true that we ſhould find a difficulty in claſſing Mr. Adolphus in any of the minuter political ſubdiviſions; but if there be any party in this kingdom whoſe ſiniſter views, or whoſe miſtaken zeal would prompt them to bold and hazardous modifications of the conſtitution, to that party he is decidedly hoſtile. And if his hiſtory be examined by the teſt of that enthuſiaſtic admiration of the principles of freedom, which, however it may have been abuſed, we ſhould lament to ſee extinguiſhed, it muſt be ranked rather as the production of a candid Tory than of a moderate Whig.

The hiſtorian of a remote period is frequently obliged to traverſe many a barren field for the purpoſe of gleaning a few ſcanty materials. But the hiſtorian of the reign of George III. is in danger of being bewildered and overwhelmed by the multiplicity of his documents. From the maſs of parliamentary debates, reports of law caſes, newſpapers, and fugitive pamphlets written upon political queſtions, which were intereſting in their day, it requires no common ſhare of honeſty, patience, and diſcrimination to make a fair and proper ſelection. In the execution of this difficult part of his taſk Mr. A. appears to us to have been eminently ſucceſsful. His narrative of the events of the American war is principally derived from Stedman's hiſtory of that conteſt. In treating on the affairs of India he principally relies on the reports publiſhed by parliament. He acknowledges his obligations to Henry Penruddock Wyndham, Eſq. Member of Parliament for the county of Wilts, "for his liberal communication of the Melcombe

combe papers;" and alſo to the Rev. William Coxe, for the unlimited acceſs which that gentleman afforded him to his valuable and extenſive collection of ſtate papers and hiſtorical documents. To other gentlemen, whoſe names he is not at liberty to mention, he profeſſes himſelf greatly indebted for important communications of facts. To theſe communications he refers (and we cannot but highly applaud the frequency of his references to his authorities) under the deſcription of *private information*. On this ſubject we muſt be allowed to make a few obſervations.

The ſubſtance of many of the facts, for the evidence of which Mr. Adolphus appeals to private information, indicates that his informants muſt have been perſons high in office, or by other means minutely acquainted with the interior movements of the Cabinet, and with the proceedings of the great. But the ſerious and ſkilful inveſtigators of truth will be by no means inclined blindly to acquieſce in the declarations of individuals, however exalted in political ſtation, or however dignified by a familiar acquaintance with men of rank. They well know that diſingenuouſneſs may intrude even into the treaſury or the council chamber; and they alſo know that in the ſtatement of a fact, important circumſtances are frequently ſuppreſſed or diſtorted by the prejudices of the narrator.—When therefore matters of conſiderable moment are recorded for the firſt time in the pages of hiſtory, they wiſh to know the primitive witneſs, in order that they may eſtimate his credibility by the conſideration of his general character, of his means of acquiring information, and of thoſe peculiar circumſtances which may be ſuppoſed, even without his own conſciouſneſs, to warp his judgment. As this proceſs cannot poſſibly be applied to anonymous information, we muſt acknowledge that we have read with the leaſt ſatisfaction thoſe portions of Mr. A.'s hiſtory which are perhaps the moſt curious and valuable; and we cannot but lament that the delicacy of the gentlemen who have ſupplied him with the materials to which we allude, prohibits the publication of their names. We may quote, as a remarkable inſtance of the doubt and uncertainty produced by ſuch vague authority in minds endued with the ſlighteſt portion of the faculty of reflection, two articles of private information, which occur in pages 127 and 129 of the firſt volume of this hiſtory. In the former of theſe paſſages Mr. A. controverting the generally-received opinion of Lord Bute's ſecret influence over the counſels of his majeſty, aſſerts, upon the authority of private information, that it was the conſtant and repeated complaint of that nobleman to his intimate friends, both in his travels and at home,

home, that he was neglected by his ſovereign. In the latter he alleges, upon the ſame ſpecies of authority, that in a negotiation which was carried on between his majeſty and the Bedford adminiſtration in 1765, the latter demanded, amongſt other conditions of their continuing in office, that Lord Bute ſhould not interfere directly or indirectly in the affairs of government. If credit is to be given to the latter aſſertion (and we do not by any means intend to controvert its truth), we find that in the eſtimation of ſtateſmen, poſſeſſed of the moſt extenſive means of aſcertaining the truth of facts peculiarly intereſting to themſelves, Lord Bute *did* retain a portion of influence in ſtate affairs ſufficient to fill the minds of his majeſty's oſtenſible ſervants with alarm and diſguſt. We are therefore curious to know upon what authority an aſſertion reſts, which, if true to the extent in which it is ſtated, goes near to prove that the Duke of Bedford and his aſſociates, in the propoſition above referred to, were guilty of a raſh and unwarrantable inſult upon their ſovereign. When the *utrum horum* is thus propoſed, we acknowledge that we are rather diſpoſed to rely upon the opinion of his grace of Bedford than upon corollaries to be drawn from the allegations of an individual, who, for any thing that appears upon the face of this record, may be an intereſted dependant upon the family of Bute, or a man endowed with that ſimplicity of mind which is eaſily impoſed upon by artful politicians.

Making, however, all proper deductions, we think it our duty to Mr. A. to declare it as our opinion, that his ſources of information are choſen with judgment, and that in the arrangement of his matter he evinces a happy perſpicuity. His political reaſonings breathe rather the ſpirit of the practical ſtateſman than of the abſtract theoriſt. Thus whilſt he maintains the juſtice of the claim of the Britiſh parliament to tax America, he condemns as unwiſe and impotent the aſſertion of that claim; and in general, although he rarely condemns the principles of miniſters, he is not ſparing of animadverſions upon their conduct. With regard to Mr. Adolphus's ſtyle, we can juſtly concede to him the praiſe of writing *apté et diſtinctè*, but we cannot add *ornaté*.* His ſentences are clear, unembarraſſed, and devoid of affectation; but he ſeldom riſes to that nervouſneſs or grace of diction which rouſes the feelings or captivates the imagination.

* Cicero de Officiis, Lib. I.

As a ſpecimen of his manner we ſhall quote his general ſtatement of the queſtion concerning the right of the Britiſh parliament to tax America.

" The participation which America claimed and enjoyed in the benefits of the Revolution, rendered it merely reaſonable that the colonies ſhould contribute toward the diſcharge of a debt, incurred in ſupport of the government which was to them the ſource of liberty and proſperity. The laſt war was undertaken principally on account of America, and a great part of the debt contracted in the preceding war had originated in the defence of that country.—The practice of impoſing taxes by authority of parliament on the Tranſatlantic dominions was not new; it had been uſed ever ſince their eſtabliſhment; not to an extent ſufficient to afford great advantage to the country, yet abundantly ſufficient, ſo far as precedent can be required, to ſupport the right of the mother-country to draw pecuniary relief from her dependencies. The principle, at the period of paſſing the reſolutions in parliament, was not deemed open to an objection; and it was conſidered neceſſary, as well as juſt, to realize the advantages which had been promiſed from the colonization and protection of that diſtant continent.

" In oppoſition to the rights of Great-Britain, thus ſupported by precedent and every known principle of colonization, certain abſtract propoſitions were aſſumed, and deſcanted on with a violence adapted to a cauſe already ſecure of partizans, and requiring only a plauſible vindication. Among theſe were the axioms, that in every free ſtate every man is his own legiſlator; that all taxes are free gifts for public ſervices; and that no one community can have any power over the property or legiſlation of another community, that is not incorporated with it by a juſt and adequate repreſentation. Without diſcuſſing the abſtract truth of theſe poſitions, as applied to independent ſtates, it muſt be obvious that, with reſpect to colonies, they can never be founded on general principle, but merely on peculiar and adventitious circumſtances. No man can be raſh enough to aſſert, that when the firſt Britiſh emigrants eſtabliſhed themſelves in Virginia; when their diminutive colony of a hundred, reduced by ſickneſs and the climate to one half of that number, hung with all the weakneſs and all the ſolicitude of infancy on the protecting ſupport of the parent land, that then theſe fifty individuals, ſtationed in a deſert, and occupied chiefly in the purſuit of food, were defrauded of their privileges as Britiſh ſubjects, becauſe no proviſion was made for their repreſentation in the national councils. When afterward by numerous emigrations the coloniſts had acquired a more reſpectable eſtabliſhment; when their charters had given permanence to their poſſeſſions, and the force and wiſdom of the mother-country were liberally exerted in favouring their proſperity; when, as a title to theſe benefits, they induſtriouſly procured the inſertion of a clauſe in their charters, importing that they were ſtill to be conſidered as Engliſhmen; and when, in return

for

for ſuch protection, they ſubmitted to thoſe impoſitions which, though not profitable to Great-Britain, fully eſtabliſhed the principle of taxation by parliament; at theſe periods no one can aſſert that their rights were invaded, or not duly conſulted. But when the mother-country, exhauſted by a protracted war, looked to its wealthy and flouriſhing colonies for relief, then theſe pleas were advanced, which never were, which never could have been before reſorted to, and which now could only be juſtified by the populouſneſs and ſtrength which America had derived from the protection of Great Britain. The ſame arguments, if true in the abſtract, would equally apply to the Iſle of Man, to Nevis, or the moſt diminutive of the colonies; if the application depended merely on force, they would either ſuppreſs the ſpirit of colonization, or indicate ſo clearly the only means of ſecuring ſubjection, that it would become a rule of policy to abandon coloniſts to their fate, with unſolicitous apathy, or to prevent their future independency by damming up the ſources of proſperity.

"Such principles had never regulated the practice of the Britiſh government: and the miniſtry, who thought of impoſing a tax on America, could not be expected to foreſee the effects which afterward reſulted from the attempt. Crown lawyers could only reaſon from the uſage and experience of paſt ages; the cabinet had no other guide: no warning voice raiſed itſelf in the Houſe of Commons; but the meaſure was ſuffered to paſs through in ſilence, as one of thoſe plans of external regulation, which proceeded rather from the executive than the deliberative power, and where concurrence is given without ſteadfaſt examination.

"Whatever cogency may now be aſcribed to deductions drawn from iſolated propoſitions, in a caſe where ſucceſs is reſorted to as the moſt convincing argument, the right of taxing America ſeemed at this period ſo inconteſtible, that any perſon who had inſinuated the poſſibility of oppoſition before the meaſures were actually adopted, would have been derided as the wildeſt of ſpeculiſts. Whether the miniſtry acted wiſely, under all the circumſtances of the times, in their attempt to tax the colonies, will be better gathered from the ſubſequent narrative, and the obſervations to which it gives riſe, than from an accumulation of objections and replies."

His obſervations on the proceedings of the miniſtry with regard to Wilkes, are candid and ſagacious.

"In all the proceedings againſt Wilkes, from the moment of his return to England, the miniſtry diſplayed great want of judgment and prudence; but in this meaſure their errors were peculiarly manifeſt. On his arrival in the month of February his outlawry was in full force; had they then iſſued againſt him a writ of *utlagatum capias* he would have been legally in cuſtody during the period of the election, and thus prevented from influencing, perſonally at leaſt, the public proceedings at that criſis. Such a meaſure could

not apparently have created a diviſion in the cabinet, ſince even Lord Chatham was attacked in the letter to the Duke of Graſton with no leſs virulence than the duke himſelf. But if they were reſolved not to add to the weight of Wilkes's misfortunes by enforcing his puniſhment, and content to incur the riſk ariſing from his popular oppoſition to their meaſures, the moſt prudent proceeding would have been to influence the king to comply with, or even anticipate Wilkes's petition by a free pardon. He could then no onger pretend that he was a martyr in the cauſe of liberty, nor would the exceſſes of the populace have been ſanctioned by any plauſible allegation of a grievance. By taking Wilkes into cuſtody after his election, and when his popularity was ſo firmly eſtabliſhed, they placed the king in direct oppoſition to a great portion of his ſubjects, and expoſed the nation to all the miſchiefs and ferments ariſing from ſuch a conteſt. In arguing the merits of his petition, the miniſtry were guilty of a great error; it claimed no particular notice, made no ſpecific demand, and might, with great propriety, have been left to lie on the table. In expelling him the houſe, their conduct was unjuſtifiable; it might be legal, but a miniſtry in a free country can never ſupport themſelves by an appeal to the letter of the law; they muſt alſo do what is expedient, and even gracious to the people. In this inſtance they manifeſted no leſs feebleneſs than rancour: as if afraid that they were not fully juſtified in expelling him in conſequence of a complaint from the other houſe, the motion was loaded with extraneous facts; reciting an offence for which he was expelled by a former parliament, and others for which he was then ſuffering the ſentence of the law; and even alleging that ſentence and thoſe ſufferings againſt him as new crimes.

" Through the medium of Wilkes ſome important popular queſtions were diſcuſſed, and it was fortunate for the country that ſuch an individual was found. The points aſcertained by his means, are of the higheſt conſequence both to liberty and government; and Wilkes was, in every reſpect, the moſt proper man to act the part aſſigned to him. Too enterpriſing to be deſpiſed, too frivolous to excite permanent apprehenſion, he was ever ready to engage in ſuch acts as required the interference of the law, and always ſufficiently ſubtle to make his errors popular, and his vices venial.—Too magnanimous to be actuated by terror, and too venal to reſiſt proffered advantages, he was a fit champion for the people, till his views were anſwered, but ſo open to gratification as never to be permanently dangerous. His avowed vices precluded him from the eſteem of the virtuous; and thus his popularity, however apparently extenſive, could never give alarm to a ſtrong and well combined miniſtry. It would have been wiſe to let him take his ſeat without reſiſtance, for as his oratorical talents were not above mediocrity, he would ſoon have ſunk into diſregard, and his writings, ceaſing to claim attention, as the effuſions of an injured patriot, would have been rated at their juſt value, and fallen rapidly into obſcurity."

Theſe

Theſe volumes are adorned with heads of his Majeſty, and of ſeveral diſtinguiſhed Britiſh ſtateſmen. We could have wiſhed that to theſe embelliſhments had been added the uſeful appendage of correct maps.

ART. XIX. *An Eſſay on Reſpiration, Parts I. and II. By John Boſtock, M. D.* 8vo. pp. 286, price 6s. Liverpool; printed for Longman and Co. London. 1804.

THE office of a compiler, on ſubjects of experimental ſcience, is one of no ſmall difficulty and importance; for its ſucceſsful performance requires not only a habit of obſerving phenomena, which is eſſential to a juſt eſtimate of the credibility due to facts, and of the competency of the means uſed in aſcertaining them, but a talent for accurate reaſoning, and for the compariſon of a great variety of ſcattered truths, and their arrangement into a well-proportioned ſyſtem. Compilations, executed by men who are thus qualified, have a double value; for while they delineate the ſtate to which a ſcience has already been brought, they promote its future advancement, by exhibiting to other labourers in the ſame field the deficiencies that remain to be ſupplied; and, like the charts of geographers, they point out thoſe unknown countries that promiſe to the enterprizing and active a rich reward of curious and important diſcoveries.

An arrangement of the facts and doctrines concerning reſpiration we have long thought a deſideratum; for the facts were heretofore diſperſed through a great variety of ſources, many of which were inacceſſible to Engliſh readers; and, on ſeveral points, a contrariety of opinion and of evidence ſubſiſts, which required to be adjuſted by a well-informed and judicious writer. This office is performed, almoſt to our entire ſatisfaction by the author of the work now before us. He has been at great pains in drawing his materials from original and authentic ſources; has rigidly, yet candidly, ſcrutinized the degree of credence due to the teſtimony of his authorities, which are always minutely cited; and has preſented a large maſs of information under a judicious diſtribution, and in a ſtyle characterized by ſimplicity and perſpicuity. We are happy to learn, from the preface, that this volume is to be followed by a ſecond, containing reports of original experiments on reſpiration, as altered by morbid ſtates of the ſyſtem,—a field hitherto almoſt untrodden. Experiments of this kind, however, require ſo much time and attention, that the author gives us no reaſon to expect the immediate publi-

cation of this part of his work; and we think he has ſerved the cauſe of Science by not having withheld till that period the preſent eſſay; which will enable other experimenters to accompany him, with well-defined views, in the ſame promiſing purſuit.

The firſt part of the work contains "an Account of the Proceſs of Reſpiration," under the heads of "1ſt. A Deſcription of the Human Organs of Reſpiration; 2d. A Deſcription of the Mechaniſm of Reſpiration; 3d. An Inquiry into the Bulk of a ſingle Inſpiration, and into the Capacity of the Thorax, in its ſeveral States of Diſtenſion."

The account of the anatomy of the reſpiratory organs is very brief and general; but this branch of the ſubject, the author probably conceived, is ſuperſeded by the deſcriptions of profeſſed anatomical writers. The chapter "on the Mechaniſm of Reſpiration," includes an account of the varied condition of the lungs, and other parts concerned in this function, in the different ſtates of expanſion of the thorax. The determination of the "Inquiry," propoſed in the third chapter, is one of more difficulty than it may at firſt appear; and, after all that can be ſaid, muſt be qualified by great varieties, occaſioned by varied circumſtances of ſtructure, habit, and conſtitution. "To attain a perfect knowledge of this part of the ſubject, it will be neceſſary to aſcertain preciſely the five following points: 1ſt. The quantity of air received into and ſent out of the lungs in an ordinary act of reſpiration. 2d. The proportion which this bears to the quantity of air contained in the thorax after an ordinary expiration, which may be conſidered as the natural condition of the thorax. 3d. The quantity of air which can be ſtill expelled after an ordinary expiration. And 4th. The proportion which this bears to the air ſtill left in the lungs, which will meaſure their ſtate of complete expiration. Laſtly, The quantity of air which can be taken into the lungs by the greateſt effort of inſpiration."

The eſtimate of Jurine, of the quantity of air received and expelled in an ordinary act of reſpiration, after being ſtrictly canvaſſed by ſubſequent experimenters, many of whom had the aid of the moſt improved apparatus, and after being reduced by ſome of them more than two thirds in its amount, is proved by Dr. Boſtock to be much nearer the truth than any of the amended calculations. This eſtimate ſtates the quantity of air, received into the lungs at every inſpiration, to be 40 cubic inches; and appears deſerving of confidence, ſince it is inferred, from upwards of fifty experiments, performed with great attention by Dr. Menzies. Reſpecting the remaining

remaining four points, we ſhall ſtate concifely, in the author's own language, the knowledge that at preſent exiſts.

"The proportion which an ordinary expiration bears to the quantity of air ſtill left in the lungs, has been variouſly eſtimated. The calculations of the older writers upon this ſubject ſeem to have been very incorrect. It appears that, in performing their experiments, they removed the lungs from the thorax, and then obſerved what quantity of air they were able to force into them, in order to their complete diſtention; but the uncertainty of this mode of proceeding is ſufficiently obvious. Dr. Menzies eſtimated the medium capacity of the lungs, in a ſtate of ordinary expiration, at 179 cubic inches; I have already ſtated the reaſons which induce me to conſider this quantity as under-rated, and to conceive that the lungs in their natural condition contain about 280 cubic inches of air.

"The experiments and obſervations which have been made to determine the quantity of air left in the lungs after a complete expiration, have been pretty fully detailed; and it appears, that, notwithſtanding the ingenuity and labour which have been exerciſed upon this point, it muſt ſtill be conſidered as undetermined. Upon the whole, Dr. Goodwyn's eſtimate, of 109 cubic inches, is the neareſt approximation to the truth, though, probably, not altogether correct.

"From the above data it may be eſtimated, that by each ordinary expiration, $\frac{1}{7}$ part of the whole contents of the lungs is diſcharged; and that, by the moſt violent expiration, ſomewhat more than $\frac{1}{2}$ of the air contained in them is evacuated. Suppoſing that each reſpiration occupies about 3 ſeconds, a bulk of air nearly equal to three times the whole contents of the lungs will be expelled in a minute, or about 4114 times their bulk in 24 hours. The quantity of air reſpired during the diurnal period, will be 1152000 cubic inches, or $666\frac{2}{3}$ cubic feet."

To the inquiry propoſed in the 4th chapter, viz. "The Cauſe of the firſt Inſpiration, and of the Alternation of Inſpiration and Expiration," no ſatisfactory reply, it will readily be anticipated, is offered by the author; and indeed the ſubject admits of nothing more than hypotheſis. The neceſſity for inſpiring anew, after retaining the air a ſhort time in the lungs, he explains by ſuppoſing, that when the blood has remained a ſhort time in the pulmonary veſſels, without the acceſs of freſh air, it undergoes a change, either in its compoſition or diſtribution; which cauſes it to act as a ſtimulus to the diaphragm, and excites this muſcle to contract.

The "Direct Effects of Reſpiration," which, form the ſubject of the ſecond part of the work, are arranged under three diviſions; 1ſt. The Mechanical Effects produced by the Dilatation and Contraction of the Thorax. 2d. The Change produced in the Inſpired Air. And 3d. The alteration which

the blood experiences during its paſſage through the capillaries of the lungs.

Chapter I. diſcuſſes the firſt of the above heads. After an attentive review of the opinions of the older phyſiologiſts, the author concludes that they apprehended the effects produced by the dilatation and contraction of the thorax, which takes place in ordinary reſpiration, to be much more important than they really are.

"In the experiments which they performed upon living animals, they neglected to make a due allowance for the unnatural ſituation in which the ſubjects were neceſſarily placed, and in thoſe which they made upon the body after death; they proceeded upon the ſuppoſition, that the moſt complete change in the capacity of the thorax, of which it is capable, was in all inſtances produced. The experiments, therefore, exhibit the effects ariſing from a dilatation and contraction of the thorax, which can take place in the moſt extreme caſes only; and the concluſions are conſequently inapplicable to the phenomena of ordinary reſpiration."

Chapter II. treats of "the Change produced by Reſpiration in the Inſpired Air." The phyſiologiſts of ancient times were aware that ſome change enſues in air received into the lungs; but the reality of this was not demonſtrated till the time of Boyle. This philoſopher proved the neceſſity of air to the ſupport of life; and that the action of the lungs ſpeedily ceaſes when the ſupply of freſh air is cut off. His ideas, however, reſpecting the nature of the change effected on the air were indiſtinct and erroneous; for he imagined that air is vitiated, not by loſing any ingredient, but merely by the addition of ſomething noxious. The original and penetrating genius of Mayow firſt ſuggeſted the true nature of the proceſs of reſpiration; for he conceived that a peculiar volatile ſpirit, one of the conſtituents of atmoſpherical air, is abſorbed by the blood in its paſſage through the pulmonary veſſels. This doctrine, however, fell into diſcredit and neglect; and has been revived only within the few laſt years of the 18th century.

The well-deviſed experiments of Prieſtley, and of Lavoiſier, have confirmed the ſuggeſtion of Mayow; and have ſhown, that during reſpiration a conſiderable part of the atmoſpheric oxygen is abſorbed. The whole of this vital portion, however, does not diſappear, for an animal dies in a confined volume of air, long before its oxygenous part is conſumed; and generally the more ſpeedily, as the temperature natural to the animal is higher. Thus birds abſtract only about two thirds of the atmoſpheric oxygen; and guinea-pigs, three-fourths;

fourths; while frogs, and other amphibia conſume almoſt the whole. Animals thus incloſed live longer when the carbonic acid is removed as faſt as it is formed; but, even then, they do not remove the whole of the oxygen. The quantity of this gas, which disappears, varies in the ſame animal, with the ſtate of the ſyſtem; more being abſorbed after ſtrong exerciſe, and after a recent meal, than at other ſeaſons. As a mean, however, the daily conſumption by man is eſtimated at between 45 and 46,000 cubic inches, or above 26 cubic feet; in weight 2lb. 8oz. Troy. Part of this oxygen is undoubtedly employed in forming carbonic acid; the exhalation of which, from the lungs, during every 24 hours, is ſtated to be about 22 cubic feet, weighing 3lb. Troy. Some of the abſorbed oxygen may probably, alſo, contribute to the production of aqueous vapour, of which the lungs daily exhale 8 or 9 oz.; but in this hypotheſis of the formation of water in the lungs, Dr. Boſtock, contrary to the opinion of Lavoiſier, does not acquieſce. A portion of the azotic gas of the atmoſphere appears, too, from Mr. Davy's valuable experiments to be imbibed; and taking theſe experiments as the data, it may be calculated at about $4\frac{1}{2}$ ounces each day. Jurine, of Geneva, ſuppoſed he had aſcertained that azote is evolved in reſpiration; but he ſeems to have miſtaken an increaſe of its *proportion*, which muſt be occaſioned by the abſorption of oxygen, for an addition to its *abſolute quantity*.

Chapter III. deſcribes "the Change effected in the Blood by Reſpiration." Some change in the condition of the blood, it has always been conceived, is effected by its circulation through the lungs. But, by the older phyſiologiſts, the effect was believed to be merely mechanical, and to conſiſt in the more accurate blending of its component parts. By their ſucceſſors the blood was ſuppoſed to part with ſomething noxious: and a third claſs ſuggeſted, that the paſſage from venous to arterial blood depends on ſomething imparted to it by the air. Lower endeavoured to prove, independently of theory, that the bright ſcarlet colour, which the blood acquires in the lungs is owing to the action of the air; but this aſſertion, though ultimately proved to be true, was diſcountenanced by the authority of Haller; and chiefly on this account failed to produce its due impreſſion. The doctrine was revived by the experiments of Cigna, and finally eſtabliſhed by thoſe of Prieſtley.

The celebrated Lavoiſier proceeded farther in ſuggeſting the ſpecific nature of the change; and inferred, that venous blood, by its converſion into arterial, acquires oxygen, and parts with hydrogen and carbon in the lungs. The exhalation of

of the latter baſis, in a combined ſtate, is placed beyond all doubt, by the copious diſcharge of carbonic acid, a fact firſt eſtabliſhed by Dr. Black, and aſſumed, without the due acknowledgment of its author, by Lavoiſier. But it ſtill remains to be determined, whether the carbonic acid is *formed* in the lungs, or merely *diſplaced* from the blood, in conſequence of the ſtronger affinity of oxygen for that fluid. Lavoiſier, though latterly a believer in the hypotheſis of its formation, originally ſuggeſted the latter theory; which, after being abandoned by him, was eſpouſed by La Grange and Haſſenfratz, and by them was very ingeniouſly defended. This doctrine aſſumes, that the oxygen which diſappears in reſpiration is carried looſely attached to the blood into the circulation; and that, during this paſſage through the ſyſtem of blood-veſſels, the oxygen combines more intimately with the carbon of the blood; becomes an oxyd of carbon; and in the lungs is changed into carbonic acid by a further addition of oxygen. In this explanation it is implied that arterial and venous blood have the ſame component principles, but in a different ſtate of combination. In proof of this, the addition of condenſed oxygen, (as that of the oxygenated muriatic acid) changes arterial blood from a florid vermilion to a dark red. The obſervations of phyſiologiſts, alſo, have proved, that blood is venalized (if the expreſſion may be allowed) in the arteries; for ſuch appears to be the condition of that which flows firſt on removing the tourniquet, and of that included in an artery between two ligatures. A ſimilar converſion of arterial to venous blood takes place in that which is incloſed in a glaſs tube hermetically ſealed. The advantage of this theory is, that it accords better with the known ſource of combuſtible matter, of which no other has yet been proved than that derived from the thoracic duct; whereas the oppoſite hypotheſis required the ſuppoſition made by Crawford, that combuſtible matter is added through the coats of the blood-veſſels, during the whole circulation. It affords, too, a better coincidence with the phenomena of animal heat; for, while the hypotheſis of Lavoiſier ſtates the combuſtion of carbon to take place in the lungs, that of La Grange ſuppoſes this converſion to go on throughout the whole ſyſtem of blood-veſſels; and thus better explains the extenſive diffuſion of animal temperature.

The azote which, according to Davy, whoſe experiments are confirmed by thoſe of Spallanzani, (neceſſarily unknown to the author of this work at the time of its publication,) is taken into the ſyſtem, Dr. Boſtock imagines does not enter in conſequence of any attraction with the blood, but that it is carried

carried in by virtue of its affinity with the abſorbed oxygen. Should the ingenious theory of Mr. Dalton, however, be admitted, this explanation will be ſet aſide.

The part of the blood which is efficient in abſorbing oxygen, is the craſſamentum, and of this, probably, the red globules chiefly act. The final purpoſe to be anſwered by reſpiration, it has lately been ſuggeſted by Cuvier, is the converſion of chyle into fibrine. That chyle is apparent in the blood, till it has completed its paſſage through the lungs, is a well-known fact; but the inference drawn from it muſt be received with the doubt that ſhould always be annexed to hypotheſis.

Chapter IV. contains "An Account of the Reſpiration of different Gaſes." After detailing the experiments of Lavoiſier, Higgins, Prieſtley, and Beddoes, on the breathing of oxygen gas, the author concludes, that we have no good reaſon for believing that the reſpiration of pure oxygenous gas would be eventually fatal. The experiments of Dr. Beddoes, which chiefly lead to this anticipation, he conſiders as too much influenced by preconceived hypotheſis to be implicitly relied on. The hiſtory of the experiments on the reſpiration of nitrous oxyd, hydrogenous, carbonated hydrogenous, azotic, and carbonic acid gas, concludes the work; but this part of it ſcarcely admits of abridgment.

The "Notes" ſubjoined to the work occupy near 100 pages; and are valuable ſupplements to the text. Some of them, however, we think would have been advantageouſly introduced into the body of the work.

Our opinion of Dr. Boſtock's firſt volume has already been pronounced highly in favour of its deſign and execution; and we ſhall only add, that, on ſome occaſions, he has manifeſted conſiderable ingenuity and acuteneſs in the examination of facts and opinions. Among other inſtances, we were much pleaſed with his ſolution of the cauſe of the very minute portion of air left in the lungs of drowned animals, as ſtated by Mr. Coleman; and with his obſervations on Mr. Davy's attempts to eſtimate the abſolute quantity of air in the lungs. One objection, however, to the laſt-mentioned experiments occurs to us, in addition to thoſe ſtated by the author, viz. the probable incompetency of the means uſed by Mr. Davy to effect an accurate ſeparation of the hydrogenous from the azotic gas. Combuſtion of a mixture of the two with oxygen gas is ſubject to much uncertainty; for if too little oxygen be employed all the hydrogenous gas is not removed; if too much, the azotic alſo ſuffers a diminution; and the exact proportion required, it is extremely unlikely, will be often attained.

ed. On regretting, lately, to one of the moſt eminent of Britiſh chemiſts, the inſufficiency of ordinary modes of analyzing a mixture of theſe two gaſes, we were aſſured that the one leaſt liable to fallacy is the uſe of oxygenized muriatic acid gas, prepared in Mr. Cruickſhank's method, i. e. from oxygenized muriate of potaſh by muriatic acid. This gas, we were told, condenſes hydrogen, but not azote; and if an exceſs of it be employed, the redundant portion may afterward be removed by waſhing with water.

ART. XX. *The Scarborough Tour in* 1803. *By W. Hutton, F. A. SS.* 8vo. pp. 318. Price 6*s*. Nicholls and Son. London. 1804.

THIS is apparently an imitation of the abrupt, unſatisfactory ſtyle of Pennant, but it is alſo bald and deformed by frequent incorrectneſs. Mr. Hutton went with his daughter to Scarborough in the ſummer of 1803, and the literary world has no reaſon to rejoice that he made ſuch a journey. We give the following as a ſpecimen of the ſtriking manner in which our author announces great truths:

"All the *furniture* of this venerable ſtructure (Clifford's tower at York), is a ſhabby tree or two, full grown, a ſty for a pig, and a repoſitory for poultry. The din of arms is heard no more. If the chattels of this ſolitary place are bad, they are not ſo bad as implements of death. *They* deſtroyed life; the pig and chicken preſerve it."

We ſcarcely recollect a more unfortunate coinage of a word than the following, "they are now ſucceeded by the dingy ſpider, and his *webby* dwelling." Mr. Hutton tells us, "that to conſider York cathedral as a place of worſhip is not conſidering it in character," and then follows a whining diſſertation, to prove that the devotion of the heart is equally acceptable be the place what it may. Who diſputes it? but does this prove the character of a cathedral not to be that of a place of worſhip? if it be not, what is it?

When Mr. Hutton arrived at Scarborough, he obſerved that the ſands were remarkably good. Children play on them. "Their parents are under no fear; neither horſe nor carriage can injure them; if they fall, they cannot be hurt; if they gambol, they cannot be daubed. *This is the higheſt pitch of felicity which can be attained by human nature.*"

We cannot ſuffer the following moſt falſe aſſertion to paſs without our ſevereſt reprobation.

"The

"The Chriſtian ſyſtem, which teaches peace, love, and rectitude of conduct, has, perhaps, done more miſchief than all the religions in the univerſe!"

As inſtances of incorrectneſs, we ſelect the following, "ſome of them *adds*," "for my daughter and *I*." Mr. Hutton talks of Henry VIII. ſeizing the property of Thomas a Becket, who ſuffered martyrdom in the reign of Henry II. "A cheſt rather triangular," put us in mind of a letter being ſaid to be very anonymous. "A Yorkiſt," we ſhould think, means an adherent of the houſe of York, not an inhabitant of the city of York.

When we had nearly reached the end of this work, we diſcovered that the author is upwards of four-ſcore years of age. We almoſt repent the ſeverity of our criticiſm. We will make Mr. Hutton amends by extracting the account of the battle of Towton.

"Edward began his journey March the 13th, 1460, with forty-eight thouſand men, to meet the queen with ſixty thouſand. Arriving by eaſy marches at Pontefract caſtle, and knowing the neceſſity of ſecuring the paſs at Ferry-bridge, he ſent the Lord Fitzwalter to take poſſeſſion, to prevent the queen from penetrating ſouth.

"The Queen's army was commanded by the Duke of Somerſet, the Earl of Northumberland, and the Lord Clifford. Henry, the Queen, and Prince of Wales, remained at York.

"Clifford was ſent from the Queen's army, which lay eight or ten miles off, with a ſuperior force, to the bridge, to diſlodge Fitzwalter, and ſucceeded. Fitzwalter, and many others, were killed. It does not appear, however, that her army wanted to paſs the river. It was not then, as in the days of Fabius, the faſhion to manœuvre: two invetcrate armies like theſe only fought each other out to fight, without any material regard to numbers.

"Warwick, afterwards known by the name of *The King-maker*, one of thoſe who had loſt the day at St. Alban's, hurt at the death of the Duke of York at Wakefield, and of Fitzwalter's defeat at Ferry-bridge, poſted down to Edward, offered his ſervice, would live and die with him, drew his ſword, kiſſed the hilt, ſtabbed his horſe, and, like a lover, ſwore eternal conſtancy.

"Edward, no doubt, received him with open arms, iſſued a proclamation, that if any man was not hearty in the cauſe, and wiſhed to depart, he had his free conſent. None laid down their arms. A ſecond proclamation followed, that no priſoners ſhould be taken, and no quarter given! This order was echoed alſo by the Queen's army.

"What could exceed this cruelty? Not even a ſavage nation. And yet I have heard it argued, that "no quarter" deſtroys fewer lives, becauſe it will ſooner end the conteſt. But is not putting to death, after ſubmiſſion, murder? Will it not rather create a ſtronger degree

degree of animoſity? the battle of Towton Field will decide the queſtion. It excited that revenge which terminated in extinction. The Plantagenets were an unfeeling race. Which of them ever ſaid, as an Emperor did to an offender, I will pardon thee, becauſe I have power to take away thy life? Retaliation was the watch-word of both parties.

"A third proclamation was iſſued, that, if any man attempted to draw back during the battle, another man might kill him, for which he ſhould be rewarded with a premium, and have double pay. Rancour diſplayed every excitement to butchery.

"Lord Falconberg and Sir Walter Blount led Edward's van, and marched on three or four miles, croſſed a ſmall River at Caſtleford, and then were attacked by Clifford, who ſoon loſt his life.

"This nobleman died without pity by our hiſtorians. He had loſt his father while fighting for the houſe of Lancaſter, and vowed "never to ſheath his ſword till he had exterminated that of York." Overcoming the Yorkiſts at the battle of Wakefield, the Earl of Rutland, ſon to the Duke of York, a child about twelve years old, running away, attended by his tutor, was overtaken by Clifford upon Wakefield bridge, who vowed revenge. The tutor is ſaid to have pleaded for the child, and he himſelf begged for mercy on his knees; but all in vain, Clifford ſtabbed him on the ſpot.

"Approaching the field, the armies joined, fought about ten hours with no material advantage on either ſide. This was on Palm Sunday, March 29, 1461. At length the ſcale turned in favour of Edward, and, before the day cloſed, the victory was complete: but not the revenge.

"About thirty-four thouſand men were left dead in the field. Among the nobles were the Lords Beaumont, Neville, Willoughby, Wells, Scales, Grey, Dacres, Fitz Hugh, Buckingham, Clifford, the baſtard of Saliſbury, and the two baſtards of Exeter.

"The Duke of Exeter and the Earl of Devonſhire were decapitated; and the heads of the Duke of York and Earl of Saliſbury, which had been ſet upon the gates of York, were taken down, and theirs ſet up in their place.

"The manor of Towton, now the property of Lord Hawke, has ſince been incloſed. The preſent turnpike road runs over what was then the field, and the part which Edward's forces muſt have occupied; but where the main battle was fought is about half a mile on the left.

"An intelligent man, who reſides in that neighbourhood, happening to be with me in the coach, pointed out the exact ſpot, and alſo a ſmall rivulet we croſſed, which was tinged with blood many days.

"The Lancaſtrians fled every way except through the ranks of the enemy, but chiefly towards Tadcaſter; but their numbers choaking up the bridge, they fell into the river, and ſtagnated the ſtream. The ground was covered with the dead, and the air pierced with the groans of the dying. A country was depopulated? Widows and children were left to mourn an irreparable loſs! and diſcord held poſſeſſion

poſſeſſion of the kingdom, becauſe two men could not agree which ſhould wear a crown that neither of them deſerved.

"This was the moſt cruel battle that ever diſgraced the annals of England."

ART. XXI. *A Diſſertation on Gout; exhibiting a new View of the Origin, Nature, Cauſe, Cure, and Prevention of that afflicting Diſeaſe: illuſtrated and confirmed by a variety of original and communicated Caſes. By Robert Kinglake, M.D.* 8vo. pp. 368. Price 7*s.* 6*d.* in boards. Murray, London. 1804.

WE opened this volume with no common ſhare of intereſt. At a period when the ſcience of medicine diſclaims that ſervile deference to theoretical ſpeculations by which it has been too long diſgraced, and founds its pretenſions to future improvement on the ſame kind of attentive obſervation, and accurate experiment, which has of late contributed ſo much to the advancement of other departments of natural knowledge; in a work profeſſing to explain the nature, cauſe, cure, and prevention of a diſeaſe that has ſo long baffled the ſpeculations of phyſicians as the gout, we expected to find much new phyſiological knowledge, ingenious reaſoning, and uſeful practical information. The author appears to be conſcious of the difficulty of the taſk he has undertaken, by confeſſing in his preface, that

"A diſeaſe, which has hitherto baffled every curative effort of medical art, and has univerſally been deemed either *ſalutary* or *incurable*, cannot be affirmed to be an ailment equally *noxious* and *curable*, without alarming prevailing prejudices, and provoking oppoſition. (Pref. p. vii.)

Our curioſity was ſtill further excited by the bold aſſertion of the author in the next paragraph, that he had eſtabliſhed the truth of the following poſitions, that

"Gout differs in no eſſential circumſtance from common inflammation; that it is not a conſtitutional, but merely a local affection; that its genuine ſeat is excluſively in the ligamentous, and tendinous ſtructure; that its attack is never ſalutary; that it ſhould neither be encouraged nor protracted; and that if ſeaſonably and appropriately treated, it is as eaſily remediable as inflammatory excitement on the muſcular, cuticular, or any other deſcription of organic texture. (Pref. p. viii.)

That confidence in the ultimate triumph of his theory over all oppoſition, and that firm perſuaſion that the practice founded on it would ſoon be univerſally adopted, which are the

the uſual concomitants of the conſciouſneſs of great talents, afforded us ſtill further reaſon to ſuppoſe that our expectations would not be diſappointed.

"Whatever, therefore, may be the fate of my reaſoning in public eſtimation, the facts which have reſulted from it will, in permanency, claſs with the phyſical elements of nature, will endure as long as the preſent economy of the univerſe, and when the author and his commentators ſhall have immemorially paſſed away in the mighty wreck of decompoſing ſubſtances!" (Pref. p. ix.)

In the firſt ſection, on the origin of gout, the author tells us, "That the origin of gout muſt have been nearly coeval with human exiſtence; ſince both the phyſical and moral cauſes, which give birth to it, muſt have occaſionally prevailed in the earlieſt ages of mankind." This is indeed diving into deep antiquity for the origin of this complaint. But we are inclined to think the Doctor's aſſertion, that "this diſtemper reſts on a law of the animal œconomy, which muſt *always* have ſubjected the human frame to the operation of its efficient cauſes," ſavours a little of impiety, inaſmuch as it ſuppoſes man came diſeaſed, or with the latent ſeeds of diſeaſe in him, from the hands of his Maker. We beg leave to diſſent wholly from this doctrine of our author, and ſtate our full conviction, that the Almighty created man upright, though he hath ſince found out many inventions; and that whole nations of men exiſt at this moment, uncorrupted by luxury and ſloth, among whom no veſtiges of gout are to be found. We think even the moſt zealous partizan of the antiquity of gout, might have contented himſelf with carrying the genealogy of that diſeaſe, as far back as the time of the Deluge, a period when we are told the ſons of men diſcovered the art of making wine, with which they made themſelves drunk.

After ſome complaints of the obſtacles that prejudice, and an adherence to old opinions oppoſe to the improvement of the medical art, the author proceeds to ſtate his opinion of the nature and conſtitution of gout, which we ſhall lay before our readers in his own words.

"1. Gout is a greater or leſs degree of inflammatory affection of the ligaments and tendons, induced by diſtempered excitability of thoſe parts from various cauſes.

"Its true nature conſiſts of active inflammation, aſſuming every diverſity which conſtitutional and temperamental conditions of life and health may impart to it; but in all caſes it inflicts on the affected parts, the morbid changes characteriſtic of inflammatory violence.

"It is an erroneous notion, that it may be conſtituted by tranſient excitement, without the more ſtationed features of inflammation. This

This is tranſient irritation only, and wants the eſſential and more durable circumſtances of definite gout.

"Were all pains darting through the joints to be deemed gouty, the appellation would aſſume the general latitude aſſigned to indiſcriminate irritation, and would diſtinguiſh with no preciſion the well-marked form of diſeaſe termed gout.

"The ſentient principle of life is indeed often tortured in parts, without inducing that vaſcular afflux of fluids, diſtention, and excitement, which are neceſſary to conſtitute gouty in common with every other deſcription of inflammation. On theſe occaſions, the pain proceeds from diſtempered ſenſibility, inſulated, and concentrated, on nervous ſtructure. Gouty irritation has a different ſeat and an unreſtrained diffuſion.

2. "Idiopathic, or true gout, or rather that inflammatory affection of the joints, which popular conſent has denoted by that name, has its ſtation excluſively in the ligamentous and tendinous ſtructure. The denſe compactneſs of this fabric gives to its nervous, vaſcular, and cellular ſubſtances, ſentient, irritative, and reſiſting powers, peculiarly adapted to induce the painful conflict ſuſtained, when, from any cauſe, theſe parts are ſubjected to inflammatory violence. Strong derivant excitement, impulſive afflux of fluids, and unyielding contractility of veſſel, are ſufficient to furniſh the moſt diſtreſsful phenomena of gout.

"If this diſeaſe, then, has for its ſeat organic texture, and imparts to it a ſpecific modification, it is obvious that a different arrangement of parts muſt be incapable of affording preciſely ſimilar effects; and that, conſequently, where this ſtructure does not preſent, whatever be the morbid excitement, the formality of gou cannot be ſtrictly recogniſed.

3. "Different degrees of inflammatory affection of the ligaments and tendons have been erroneouſly ſuppoſed to be eſſentially diſtinct diſeaſes and have accordingly received ſuch reſpective denominations, as have been held to be appropriate: thus an inflammation on thoſe parts, ariſing from general cauſes, is at one time diſtinguiſhed by the term rheumatiſm, at another, when the inflammatory irritation has reſulted from external violence, particularly that of extenſion, it is named ſprain. It will require no extraordinary ſkill in independent thinking, to perceive the perfect identity of theſe ſeveral nominal ſtates of inflammation, and to refuſe aſſent to the prevailing prejudice, that they are eſſentially different.

"By a law of phyſical neceſſity it muſt be admitted that cauſes acting in ſimilar circumſtances muſt produce ſimilar effects; and an eſtabliſhed rule of true philoſophiſing forbids a reference to ſuperfluous agency in explanation of efficient power. An active inflammation of the ligamentous and tendinous ſtructure preſents an example of the conſtituent parts ſuffering from the excitement of increaſed motion and tenſion. The degree of the affection will be proportioned to the violence of the impreſſing cauſe, and the greater or leſs irritable ſtate of the parts ſubjected to the diſeaſe; but theſe

different degrees of excitement create no real difference in the quality of the effect however it may have been induced.

"If the ſtomach be ſolicited to a rejection of its contents, by virtue of ipecacuanha at one time, and by tartariſed antimony at another, in both caſes the effect is vomiting; and, however it may differ in degree, the phyſical conditions in the operation are identically the ſame.

"Why, then, in ſervile conformity to unmeaning cuſtom, ſhall medical language authorize a diſtinction without a difference, in variouſly denominating the ſame affection, gouty, rheumatic, and ligamentous or tendinous inflammation?

"The fundamental identity of theſe ideally-different inflammations cannot be queſtioned from the external differences which accidentally diverſify the form of the effect." (p. 9—12.)

With ſome difficulty, we think, we can deduce from this ſtrange clutter of words that the author conſiders gout, rheumatiſm, and a ſprain as being identically the ſame diſeaſe, and that diſeaſe to conſiſt in actual inflammation. Surely all ages have borne teſtimony that the old and the intemperate are more liable to the gout than the young and the vigorous; but certainly the young and the vigorous are thoſe among whom active idiopathic inflammation moſt commonly occurs. We are, at this preſent time, acquainted with a gentleman who never had an attack of gout till the eighty-fifth year of his age, though now, in the courſe of five years, he is ſo crippled by it as to be unable to walk without crutches. Are we bound to believe, according to the Doctor's theory, that this perſon became more liable to active inflammation as he advanced in years? Again the Doctor informs us,

"The phenomena of gout, correctly contemplated, offer irreſiſtible evidence in proof of its genuine nature and origin. It is invariably founded in different degrees of inflammatory action, and its ſpecific character requires that either the ligamentous or tendinous ſtructure ſhould be the ſeat of the affection. In every caſe, therefore, it may be conſidered as of local origin, though producible by various conſtitutional ſtates of excitability, as well as injury primarily befalling the affected parts." (p. 19.)

By which we preſume he means to ſay that gout is merely ſimple, local inflammation. We would inquire of the Doctor whether he ever ſaw in any caſe of ſimple local inflammation, of which we will mention chilblain as an example, any ſuch depoſite of calcareous matter as peculiarly diſtinguiſhes the advanced ſtages of gouty inflammation? We conſider this circumſtance alone as affording a ſufficient teſt of gout being

ſomething

ſomething eſſentially different from ſimple inflammation. When to this we add, that chemical experiments have lately diſcovered the calcareous depoſit taking place in gout to conſiſt almoſt wholly of lythic acid, and that the urine, in which this acid is commonly found in abundance, and which appears indeed to be the ſecretion appointed by nature to carry off the ſuperabundance of it from the living body, is found to hold none of this matter in ſolution during the exiſtence of a paroxyſm of gout, we think the evidence almoſt concluſive, that the inflammation in gout is a conſequence of the depoſition of this matter on the part of the body affected by that diſeaſe. Of theſe diſcoveries in animal chemiſtry the author has taken no notice whatever. They certainly do rather ſtand in the way of his own ſweeping theory.

As a fair ſpecimen of the author's luminous ſtyle, we ſhall lay before our readers his mode of accounting for the formation of chalk-ſtones.

"The parts which are the ſeat of gouty inflammation, are peculiarly liable to irreparable and truly diſtreſsful miſchief, from long-continued affection. The ligamentous and tendinous ſtructure will, by repeated and delayed irritation, ſoon become impaired in its uniform denſity, poliſhed ſurface, cellular flexion, and native excitability; its circulating and exhaling fluids will alſo ſuffer in tranſmiſſion and quality. The confuſion reſulting from this derangement will generate diſeaſed motions; which, by contiguous ſympathy, will proceed to the neighbouring cartilages, perioſteum, and bone, inducing diſtempered action, with its morbid conſequences, on the circulating and ſecreting fluids of thoſe parts.

"In this diſordered excitability, as well as altered ſtructure, it is not difficult to perceive the cauſe of the worſt effects that characterize prolonged and inveterate gout. If the gouty inflammation be not early ſubdued, an effuſion of coagulable lymph, and a generation of new veſſels, will ſoon permanently thicken and enlarge the affected ligaments and tendons. The continued irritation from this ſtructural derangement will vitiate the vaſcular action of the perioſteal covering of the gouty joint, and force its exhalant veſſels to bring back from the bony fabric more or leſs of oſſific principles, with its diluent fluid. Theſe principles are phoſphoric acid and lime, which are combined with other ſubſtances, into the form of organic bone, by the nutritive or generative veſſels of that ſtructure.

"The oſſeous but unoſſified ſubſtances exhaled on the gouty joint, aggregate and form, in the temperature of the part, the calcareous concretions, which, advancing to the cuticular ſurface by arterial impulſe behind, and ulcerative decompoſition before, at length appear through the ſkin in knots, or tophous tumors, and are finally diſcharged under the name of chalk-ſtones.

"The ſtimulant effect of ſuch miſplaced ſubſtances, the mechanical violence of ſuch rough concretions, and the altered ſtructure of

the ligaments and tendons, fill up the meaſure of deformity and immobility to which the gouty joint, ſpoilt by foſtered inflammation, is ultimately conſigned.

" Is all this havock the inevitable progreſs of the diſeaſe, and the irreſiſtible work of nature? No: her decrees are not ſo penal; it is the miſdeed of art reſulting from deluſive prejudice." (p. 30—32.)

His explanation of the mode in which he ſuppoſes gouty diathefis may become hereditary, is no leſs clear and ſatisfactory.

" However gouty inflammation may have been repeatedly produced, whether by external violence, the gradual formation of altered ſtructure, or local exceſs of diſtempered excitability on the ligamentous, tendinous, and facial parts, the morbid changes induced, will at length become ſo radically influential in the motive powers of the ſyſtem, as to generate a tranſmitable ſtate of temperamental ſuſceptibility for morbid affection. The offspring in ſuch diſeaſed circumſtances will poſſeſs conſtitutional powers equal to the ordinary functions of health, but yet accompanied with a temperamental diſpoſition to the diſeaſe. In theſe inſtances gouty excitability may be ſaid to be hereditary. The motive powers of the ſyſtem at large have an undue exceſs of impreſſibility, while thoſe of the ligamentous and tendinous ſtructure are ſubjected to it in a preponderant degree. Theſe intrinſically morbid conditions may never go the length of actual diſeaſe, if cauſes ſufficiently excitant do not operate on the native ſuſceptibility for being affected. Thus it often occurs that the progeny of gouty parents is exempt from the formal attack of the diſeaſe, neither external injuries, nor the internal conditions of health, having furniſhed exciting cauſes ſufficient to induce ligamentous or tendinous inflammation. (p. 49-50.)

" As generation is not the work of diſeaſe, but that of health, the powers of incipient life oppoſe an early and progreſſive reſiſtance to the growth of morbid organization. Nor indeed would the phenomena of vitality be compatible with the degree of diſeaſe that could be formally active at the commencement of organic arrangement: hence it rarely occurs, that the fœtal ſtate partakes of maternal contagion, even in variolous, venereal, or other contaminating maladies." (p. 51.)

The nature of the proximate cauſe of gout is explained in the following terms.

" The proximate cauſes of gout reſult from the aggregate efficiency of the remote cauſes, and is truly the diſeaſe itſelf. This efficiency or proximate cauſe, by which the diſeaſe is conſtituted, conſiſts in an agitated and an increaſed degree of vital or repulſive motion in the affected parts.

" By vital motion is meant a repellency ſubſiſting between the conſtituent particles of all matter. This innate power or property is by a law of nature ſpontaneouſly evolved from atomical ſurfaces, and aſſumes character and determinal force when iſſuing from the congeries, or combination of material ſubſtances, which forms ſpecific or particular ſtructure.

" The

"The exertion of this univerſally repellent power in the organic fabric of the animal economy is life, or vital motion. The action of this power denotes itſelf in animal feeling, as heat; an undiſtinguiſhable identity, therefore, with reſpect to the object, ſubſiſts between what has been variouſly denominated repulſive motion, vital action, and heat. Theſe ſeveral modes of the ſame thing ariſe from the different circumſtances in which it is operative. Repulſive motion is the natural efficiency of matter, and univerſally pervades every conceivable atom; vital motion is the organic efficiency of matter, and heat is the impreſſion only which that power makes on animal ſenſation.

"In this view of the nature of vital power, it will be eaſy to perceive the ground of its morbid excitement in gouty inflammation, as well as in every other variety of diſeaſe; it alſo inſtructively develops and explains the real cauſe of all the diſtreſſing torture occurring in inflammatory gout, to conſiſt in almoſt a combuſtive degree of redundant heat, or repulſive motion. The definition, therefore, here ſubmitted, of the proximate cauſe of gout being a morbid exceſs of heat, is perfectly conſonant with the explanation offered, of the nature and origin of that power.

"The utmoſt practical advantages are likely to enſue from contemplating the foundation of gout, in common with all other diſeaſes, as laid in repulſive motion, and of aſſimilating this innate property of matter with the cauſe of heat.

"In this identity is preſented an eaſy ſolution of the various intricate queſtions which have agitated and divided the ſchools of medicine from the remoteſt periods to the preſent time; and, what is of ſtill greater importance, it leads very directly to an appropriate, and conſequently to a ſucceſsful mode of cure.

"Gouty inflammation affords a moſt ſtriking example, unique indeed in the catalogue of diſeaſes, how much the general theory and practice of medicine promiſe to be benefited by the explanation here given of its proximate cauſe. It at once rejects the unmeaning doctrines which iſſued from the reveries of humoral pathology, and points out an infallible mode of relief, and often, indeed, of perfect cure.

"Gouty excitement, in common with that of every other deſcription, is chiefly cogniſable by the greater or leſs degree of heat which accompanies it: this, therefore, is an agitated, and conſequently an exceſſive evolution of vital motion, endeavouring to eſcape by the affected part, torturing the ſentient fibre by its accumulated force, and requiring the coldeſt media for its ſpeedy and curative transference." (p. 76—79.)

From whence we collect that heat, conſidering heat to be a peculiar internal movement among the particles of matter, according to the theory of Mr. Davy, and Count Rumford, not a fluid ſui generis, as is more generally ſuppoſed, being accumulated in a particular part of the body, is the real efficient cauſe of gout. Unfortunately the Doctor has not thought it worth his

while to bring forward a ſingle experiment in ſupport of this opinion, though certainly few medical opinions are capable of being more eaſily brought to the teſt of experiment. We really thought the Doctor had forgotten that ſuch an inſtrument as the thermometer, by which the temperature of the body, or of any part of it, may be ſo readily aſcertained, exiſted. We find it, however, caſually alluded to in the following words:

"The healthy ſtate of vital motion is liable to be diſturbed by an infinity of remote cauſes, in the excitant action of all which either a painful or heated ſenſation is induced, which ſerves to mark morbid deviation from the ſtandard temperature; and though exceſſive heat ſhould not be thermometrically diſcoverable at the ſurface, yet it actually prevails, as the neceſſary effect of commotion; and its diſſipation, or transference, by cooling means, will moſt effectually reſtore the motive power to the duly repulſive or healthy harmony." (p. 79-80.)

Surely the author ſhould not have ſo lightly paſſed over a point of ſuch importance to the ſupport of his whole theory. We would roundly aſſert, that "if exceſſive heat be not thermometrically diſcoverable at the ſurface," there are no grounds whatever for ſuppoſing that exceſſive heat does exiſt, and that of courſe the whole of this theory is a mere gratuitous ſuppoſition not founded in fact.

Affirmanti incumbit probatio, is a received logical axiom. It was the author's indiſpenſable duty to prove by experiments with the thermometer, that increaſed heat does exiſt in gout, as Dr. Currie has ſo decidedly ſhewn to be the caſe in thoſe ſpecies of fever where the affuſion of cold water is found beneficial. We have not only no experimental proofs of increaſed temperature taking place in gout, but there are many experiments of an eminent phyſiologiſt which prove, that little or no increaſe of temperature takes place in any caſe of local inflammation whatever. Mr. John Hunter (in his work on the blood) details a variety of experiments where he introduced the thermometer into wounds inflamed by the injection of corroſive ſublimate, and into the vagina of the aſs irritated by ſimilar means; in no caſe did the thermometer vary more than a degree, nor did that inſtrument, inſerted into inflamed wounds of the extremities, ever riſe ſo high as the ſtandard heat near the heart of the animal on whom the experiment was made. Till we have ſome more direct proofs of the increaſed heat in gouty inflammation than what are derived from the feelings of the patient, we muſt beg permiſſion to doubt the aſſertion.

Dr.

Dr. Kinglake having, however, proved to his own ſatisfaction that heat is the eſſence of gout, nothing could be more obvious than the cure. *Contraria contrariis curantur.* Heat is to be deſtroyed by cold. Set your houſe on fire, only be quite ſure that it is on fire, the remedy is obvious; extinguiſh it as faſt as poſſible, by throwing cold water on it. Accordingly we find,

"This curative reduction of morbid exceſs of heat, in gouty diſeaſe, is moſt commodiouſly and effectually attainable by the employ of cold media, to transfer the redundant temperature with the utmoſt diſpatch.

"Cold water is the univerſal boon of nature, is the vehicle of atmoſpheric temperature, in which the functions of health are carried on, and to the refrigerant offices of which intemperate heat yields its hurtful influence. The fluid, then, which bears the ſalutary temperature, is the ſimple and efficacious remedy here propoſed for the immediate relief and ſpeedy cure of gouty in common with every deſcription of inflammation. It ſhould be applied topically to the affected parts, either by means of wetted cloths, by gentle ſhowering, or actual immerſion. A durable degree of cold muſt be ſupported; the refrigerant force, therefore, of its firſt application muſt be uniformly continued by frequently renewing the cold water, which frequently becomes heated by the inflammatory temperature of the affected parts. This courſe ſhould be purſued until the painful ſenſation of burning heat ſhall ſubſide, and with it the concomitant efflorescence and tumefaction.

"It cannot be determined with any preciſion that could be even generally applicable, how long this refrigerating treatment ſhould be continued; but an unerring practical rule, may be drawn from the attendant heat and pain, which is unremittedly to perſiſt in the remedy until every ſenſe of painful heat be completely ſubdued, and the affected parts begin to regain motive power.

"If a general period can be given in which curative benefit is derivable from the employ of this ſimple remedy, it may be fixed at forty-eight hours; but for the conſolation of the patient be it known, that relief is coeval with its firſt uſe, and uninterruptedly progreſſive to its ultimate completion.

"Much will depend on the unveering uniformity with which this remedy is applied. It ſhould not be forgotten that the object to be effected, is literally the extinction of fire; and that, therefore, it would not be leſs unwiſe to deſiſt before its accompliſhment, than it would be to check only, or repreſs, the conflagration of a building, inſtead of completely annulling it." (p. 82—84.)

This is, indeed, ſimplifying the practice of phyſic. We have heard the celebrated Dr. John Brown aſſert, that he hoped to ſee the day when a phyſician would poſſeſs uncontrolled dominion over every modification of diſeaſed action, by carrying a bottle of brandy in one pocket, and a phial of

tincture of opium in the other. But what was that boaſt compared to the power of expelling gout and rheumatiſm from the conſtitution, and even of curing a ſprained ankle (a very troubleſome complaint, but which we moſt potently believe to be, to the full, as frequently cauſed by leaping over a five-bar gate, as by the preſence of increaſed temperature) by the application of ſimple cold water.

The Doctor does not, however, truſt wholly to cold water. In ſome obſtinate caſes he adminiſters tinctura opii camphorata, and tinctura guaiaci ammoniata, very common place, and very uſeful, remedies. Opium, he tells us at page 90, he conſiders as being a *narcotic ſtimulant*. This appears to us a direct contradiction in terms. If we have not quite forgot our Greek, *narcotic* means ſtupefactive, ſomething which dulls ſenſation, of which ſtimulant, in commonly received language, is the very oppoſite. Perhaps the Doctor may ſuppoſe that two terms of oppoſite meanings, applied to the ſame thing, may, like an acid and an alkali, neutralize each other, and form a tertium quid, differing in its properties from both its conſtituent parts. But, as applied to language, we apprehend this to be a falſe analogy. When a perſon attempts to deſcribe the virtues of a ſubſtance by terms completely contradictory, we are rather inclined to think he is poſſeſſed of no clear ideas concerning it.

The author entertains no apprehenſions of any bad conſequences of what has been termed repelled gout from the local application of cold, although, from the analogy between gout and other inflammatory affections accompanied with debility, for example, eryſipelas, inſtances of the tranſlation of which from one part of the body to another, every man's experience muſt have furniſhed him with, we ſhould be inclined with the vulgar, whoſe fears the Doctor treats with deriſion, to conſider as an event which might ſometimes occur in gout.

"The miſconceived notion of the conſtitutional and critical nature of gout precludes the exerciſe of common diſcernment as to its true character, and conſigns it to the dominion of the moſt inveterate prejudices.

"The influence of habitual adoption and intellectual indolence rejects and diſdains further inquiry into a diſeaſe that is ſuppoſed to be ſufficiently underſtood, and of an accredited nature, that has been conſecrated by the concurrent teſtimony of ages.

"Truth has not a more arduous obſtacle to contend with than preſcriptive error. It is an authority which is held unqueſtionable; and though its ground be not underſtood, it is conſidered as cavilling or captious to diſbelieve or doubt what has been confirmed by unobjected admiſſion.

"Theſe

"Theſe impoſitions can only be detected by an ardent love and deſire of independent inquiry, by an averſion to concluſions that neither illuſtrate any difficulty, nor lead to any advantage.

"A guarded endeavour at inveſtigation, in ſuch circumſtances of blind fidelity, unmeaning confidence, and uſeleſs preſcription, may terminate in valuable diſcovery; it will certainly break the fetters of prejudice, and afford an unconfined ſphere for liberal contemplation.

"The painful ſeverity of gout, its crippling tendency, its deep and irreparable impreſſion on the conſtitutional ſtrength, and the increaſing facility and frequency of its recurrence, are well adapted to impreſs a belief of the dreadful nature of the malady, and to induce an anxious endeavour to inveſtigate the cauſe, and to deviſe a rational mode of repreſſing and curing ſo growing and crying an evil. Some diſeaſes are more untractable than others, and ſome are abſolutely incurable; but it is peculiar to gouty inflammation to proſcribe every attempt to cure, leſt its remedial efficacy ſhould be fatally counteracted.

"Such nonſenſe is ſounding, but muſt vaniſh before the decree of reaſon and fact, which here proclaims gout, in common with every other diſeaſe, to be fair game for medical attack; that it poſſeſſes neither ſalutary nor morbid privilege; that no quarter ſhould be given it; but that it ſhould always be earneſtly combated, in a manner commenſurate with its ſpeedy and utter extinction." (p. 99—101.)

After a moſt attentive peruſal of this work we are not enabled to ſay that the author has eſtabliſhed either of his principles to our ſatisfaction. We do not think he has adduced evidence ſufficient to prove either his poſition, that gout is, in all caſes, a diſeaſe merely local, or that the proximate cauſe of that diſeaſe is ſimply augmented temperature, or accumulation of heat in the part affected. Neither has the author, in our opinion, taken the moſt proper means to conciliate the public opinion in favour of his novel practice, or to enſure a favourable reception of his theories, by the cautious and ſceptical inveſtigator of phyſical truth. There is a vein of arrogance and dogmatiſm runs through the ſtyle of this writer extremely offenſive, and which he would do well to correct. At a time when the manner of conducting philoſophical inveſtigations, recommended by Lord Bacon, is ſo well underſtood, and ſo univerſally inculcated in every univerſity, or ſeat of learning, we could hardly have ſuppoſed that any perſon, with a mind diſciplined by the preſent ſyſtem of medical education, could have ventured to conſtruct a theory on ſo few and ſlender experimental facts, or to write a book ſtrongly recommending a novel practice, repugnant to the prevailing opinion of mankind in general, ſo very deficient in legitimate deductive reaſoning. The propenſity of the preſent race of medical practitioners to introduce

introduce every poiſon, recommended as a remedy, into the human body, and to adopt any raſh practice that has the appearance of novelty, is too great, and requires to be moderated. We cannot, therefore, better conclude our account of a book, the object of which is to recommend plunging a limb affected with the gout into cold or into iced water, than by reminding our readers that in flowneſs of belief conſiſt the ſinews of wiſdom, and that experiments, where human life is at ſtake, cannot be too cautiouſly ventured on.

To the body of this work, which extends to 151 pages, is added an appendix of 194. This, as it is the largeſt, ſo we are inclined to think it the moſt valuable part of the work. It contains a great many apparently faithful ſtatements of the ſalutary and ſafe application of cold water in gouty and rheumatic affections. We ſincerely hope that further experience, which we ſtill deem requiſite, may ultimately confirm the utility of this practice, and by ſo doing diminiſh the ſufferings of the afflicted. We think the author degrades himſelf by entering into a controverſy with an antagoniſt who diſingenuouſly conceals his name. This diſpute is on both ſides carried on with a moſt illiberal and unbecoming ſpirit of acrimonious recrimination. Strange it is, that though medical diſputes have been ſo repeatedly held up to ridicule, medical men never learn that by expoſing their perſons as public laughing-ſtocks in ſuch kind of vain tournaments, they not only diſgrace themſelves, but viliſy a liberal profeſſion, the individuals of which the public in general have been at all times ſufficiently inclined to hold in contempt.

Art. XXII. *A Reply to Mr. Edlin's Two Caſes of Gout, ſaid to have terminated in Death in conſequence of the external Uſe of ice and cold Water. By Robert Kinglake, M.D.* 8vo. pp. 61. Price 2s. 6d. Murray, London, 1804.

SINCE the above was written a Mr. Edlin of Uxbridge has publiſhed a narrative of the caſe of Mr. Baker, who he ſuppoſes to have died in conſequence of the external application of cold water and of ice, while affected with the gout. Dr. Kinglake's Reply to this caſe chiefly conſiſts of invective. He charges Mr. Edlin with *mala fides*, by which we preſume he means, in plain Engliſh, telling a lie. He then accuſes him of being inſtigated by perſonal malice againſt Dr. K. for which we can ſee no good ground. He next ſuggeſts doubts whether the diſeaſe of which Mr. Baker died was in reality gout; and finally blames the treatment purſued by Dr. Haworth, who

appears

appears to have been called in when too late to be of any ſervice.

To our apprehenſion, at leaſt, Mr. Edlin appears to ſtate the facts that occurred in a plain and candid manner, and with an honeſt intention to warn others againſt what appeared to him to be a dangerous practice, to which a valued friend had fallen a ſacrifice. Dr. K. ſtill affects a degree of candour by calling for evidence both for and againſt the practice of cold applications in gout, but the indecorous virulence with which he has attempted to repel the teſtimony afforded by the caſe of Mr. Baker againſt the ſafety of the practice, ſufficiently proves that caſes where cold applications have done good, or where, at leaſt, they have done no manifeſt harm, are ſuch only as are likely to find favour in his eyes.

Medical men have ſometimes been accuſed of trying experiments on their patients, we truſt without juſt cauſe, for ludere corio humano is a grave and ſerious charge; but moſt certainly they have not been backward in making themſelves the ſubjects of experiment, and numerous have been the victims to this propenſity. The ingenious Dr. Stark died within our memory, in the courſe of a trial how long a man could live excluſively on Cheſhire cheeſe. To prove that the plague was not a contagious diſeaſe, Dr. White inoculated himſelf with the matter of it in Egypt, and fell a ſacrifice to his peculiar theory. With the ſame intention we lately read an account of a phyſician in America, who ſwallowed ſix ounces of the matter of the black vomit found in the ſtomach of a perſon who had died of the yellow fever, an example of no ſmall faith and courage, and who, ſtrange to tell, did not die in conſequence. To this liſt of martyrs to theory, Mr. Baker may fairly be added. And we muſt confeſs, that were a practitioner under whoſe mal-treatment a patient had died as fairly as Mr. Baker appears to have done, under his own miſmanagement, to be indicted at the Old Bailey, were that practitioner even Dr. Kinglake himſelf, notwithſtanding all the ingenious arguments he might bring forward in ſupport of the utility and ſafety of his peculiar practice, we would not willingly ſtand in his ſhoes, and abide the verdict of an Engliſh jury. We ſhall conclude with Dr. K.'s own novel and appropriate Latin adage (we wonder in what claſſical author he found it).

Tempus omnia *revelat.*

ART. XXIII. *Practical Obſervations concerning Sea Bathing. To which are added, Remarks on the Uſe of the Warm Bath. By A. P. Buchan, M. D.* 8vo. pp. 234. Cadell and Davies. London. 1804.

THIS book is profeſſedly rather of a popular than of a ſcientific nature: the ſubject is intereſting, and it appears to be judiciouſly, and not inelegantly, treated.

"It might be naturally preſumed," ſays Dr. Buchan (p. xiii.), "that the beſt information reſpecting the propriety of bathing, could, when neceſſary, be obtained by applying to ſome of the medical practitioners reſiding on the ſpot. But a perſon repairing to the ſea-coaſt with ſome ſlight ailment, which he has reaſon to expect will be removed by bathing, or by change of air, does not always conſider it as being incumbent on him to make a formal appeal to medical opinion; and, when information is required concerning the propriety, frequency, or fitteſt time of bathing, I have in general obſerved, that the bathers are the oracles to whom people apply for advice. Of their opinion I would ſay, with Horace, '*Malè verum examinat omnis corruptus judex.*' It is ſcarcely, indeed, to be expected, that a perſon whoſe profits depend on the number of his employers ſhould have the candour to tell any of them that they have no occaſion for his ſervices. In caſes where any ſerious doubts are entertained reſpecting the eventual utility of bathing, the medical reſident is unqueſtionably the proper perſon to reſolve them. Againſt miſtakes of minor importance, the preſent publication may prove, it is hoped, an adequate ſafeguard."

Some ingenious remarks are made in the preface on the natural as well as artificial advantages which diſtinguiſh the Iſle of Thanet, as a ſituation better adapted than almoſt any other for the purpoſes of bathing. Two-thirds of its ſhores, or more, being waſhed by the ſea, its winds muſt generally be ſea-breezes: the ſoil being calcareous muſt tend to purify the air by abſorption of noxious vapours, and the perfume of its aromatic plants to refreſh it: the cliffs facing the north-eaſt muſt afford an agreeable ſhade in the ſummer months; and the ſouth-weſt wind, ſo generally prevalent in autumn, blowing off the ſhore, can ſeldom bring on ſuch a ſea as to interfere with the bathing.

The convulſive action of the diaphragm which conſtitutes the ſobbing obſerved upon the firſt immerſion into cold water, Dr. Buchan attributes partly to the torpor of the veſſels of the lungs, ariſing from their ſympathy with thoſe of the ſkin, and partly from the approach of the cold medium to the inſertion of the diaphragm into the margin of the thorax. The latter cauſe will probably be conſidered by moſt as very little concerned in the effect; with reſpect to the former, it is true, as Dr. Buchan obſerves, that the immerſion of the extremities, or of the whole

whole body in cold water, may ſometimes be employed with ſervice in the cure of internal hæmorrhages, as tending to leſſen the general activity of the ſanguiferous ſyſtem: but it will be very difficult to convince thoſe who are attached to the common opinion of the exiſtence of a congeſtion of blood in the lungs upon the firſt immerſion, that the cold and preſſure which evidently produce paleneſs and contraction in the ſuperficial parts, can do this without driving the blood in ſome meaſure towards the internal ones: and Dr. Buchan's aſſertion of the innocence of cold bathing, in caſes of hæmoptoe, will perhaps appear to them to require ſome proof from experience.

Dr. Buchan found that immerſion in water at 60° uniformly produced in his own perſon a quicker and a weaker pulſe; in another perſon a ſlower. He thinks that the effect of an agreeable glow after bathing is the beſt teſt of its utility to the conſtitution. The habit of bathing in general, or even of waſhing the feet daily with cold water, he conſiders as an excellent preſervative againſt the catarrhs to which the inhabitants of this country are ſo liable. The irritation of flannel clothing is ſuppoſed not only to render the wearer delicate, but to haſten the approach of old age; on this ſubject the ſentiments of Dr. Cheyne, and of Dr. Trotter, are quoted as agreeing with thoſe of the author. The fleſh bruſh is however ſtrongly recommended as a very uſeful addition to a courſe of cold bathing.

Dr. Buchan obſerves very truly, that it is by no means in all caſes adviſable to bathe at an early hour in the morning, the ſyſtem being often too languid at that time: noon, or any hour between noon and the time of dinner being more eligible. The water frequently acquires an additional heat of 10° or 12°, while the tide flows over the ſand that has been expoſed to the ſun, and Dr. Hunter has obſerved, that though the average heat of the ſea in July and Auguſt is about 63°, it ſometimes riſes to 71°. The opinion of many perſons who ſuppoſe that it is always unſafe to bathe when they are heated or even warmed by exerciſe, is ſufficiently controverted by the reputable authority of Dr. Currie, as well as by other arguments: the example of the Finniſh peaſants is adduced to ſhow that a tranſition from the temperature of a vapour-bath to another as much below it as the freezing is below the boiling point, may, by habit, be rendered perfectly ſafe and familiar. A damp bathing machine the author has often found 4° or 5° colder than the ſurrounding air; this circumſtance is mentioned as requiring the attention of thoſe whoſe conſtitutions are delicate, and it is aſſerted that

that the repetition of immerſions, or the habit of plunging in head foremoſt, may often, to ſuch perſons, become the cauſes of head-aches. When coldneſs and ſhivering have been produced, and remain in an alarming degree, the application of a bladder of hot water to the pit of the ſtomach is warmly recommended. Where the habit is full, and any danger of apoplexy is apprehended, the operation of cupping is conſidered as the beſt means of avoiding inconveniences of this kind. Much ſtreſs is alſo placed in immerging the head completely under water, without the intervention of any part of the dreſs. Where the health is delicate, it is very properly ſuggeſted that the tepid-bath may be at firſt employed, and its temperature lowered five degrees at each immerſion, until it become quite cold. Much advantage being ſuppoſed to accrue from the adheſion of ſome ſaline particles to the ſkin, it is remarked that there is no neceſſity for being very careful in removing every trace of moiſture upon coming out of the ſea, eſpecially as expedition in dreſſing will tend to facilitate the ſalubrious glow.

In the fourth chapter, among the complaints in which ſea-bathing is found beneficial, we find the diſeaſes ſcrofula, rickets, convulſions, epilepſy, St. Vitus's dance, hyſteria, hydrophobia, palpitation, indigeſtion, hypochondriaſis, want of ſleep, loſs of voice, irregular fever, ſome palſies, chloroſis, intermittent fever, chronic ophthalmia, catarrh, nervous aſthma, chronic rheumatiſm, and the conſequences of mercurial medicines.

"The tendency to ſcrofula, may be counteracted," ſays Dr. Buchan (p. 100), "by eating nutritious, but not ſtimulating food, taking ſufficient exerciſe in the open air, and reſiding in a dry and elevated ſituation; but eſpecially by early accuſtoming the frame to endure the viciſſitudes of temperature, by the habitual uſe of the cold bath, and more particularly by ſea-bathing. Where ſtrumous tumours are ſeated on the neck, beſides bathing, and drinking the ſea-water, proper directions for which will be found under a diſtinct head, advantage will be derived from keeping linen cloths, moiſtened with ſea-water, perpetually applied to the ſwellings. When the upper lip and noſtrils are much thickened, thoſe parts ſhould be frequently wetted with the ſea-water. If the ſcrofulous diſpoſition manifeſts itſelf by ſuperficial ulcerations on the hairy ſcalp, the head ought to be ſhaved, and frequently waſhed by means of a ſponge previouſly immerſed in tepid ſea-water. Children tainted with ſcrofula frequently have a profuſion of fine hair; though this may be reckoned an ornament, parents who conſult the welfare of their offſpring ſhould not permit it to remain; for it is commonly obſerved, that children who have very long hair are in general pale and unhealthy."

In

In ſcrofulous affections of the eyelids, he recommends that the eyes be kept open during bathing: in ſwellings of the joints, and enlargements of the bones, that the parts be kept ſwathed in bandages conſtantly moiſtened with ſea-water. In white ſwellings the partial application of ſea-water by means of a pump has been found beneficial; even in caries of the bones, the exfoliation may often be accelerated by partial as well as general bathing with ſea-water. In tumours of the meſenteric glands, which often accompany atrophy and maraſmus, bathing is rarely adviſable. "More advantage may be expected from the internal uſe of ſea-water; but when completely formed, this complaint rarely admits of a cure."

"It may not be improper here to mention, that I have lately ſeen one caſe, and heard of ſome others, where ſcrofulous ſores of conſiderable extent healed while the patient was daily taking two table ſpoonfuls of the recently expreſſed juice of the water parſnip (ſium nodiflorum) mixed with an equal quantity of milk. It produced no effect on the conſtitution, except that of keeping the body gently open." (p. 104.)

In ſome caſes of chloroſis, warm bathing has been found to agree when cold bathing appeared to be very prejudicial. The caſe of Mr. Chiſholme is quoted, in which the application of hot brine was perfectly ſucceſsful in the cure of a ſteatomatous wen. To eryſipelas ſea-bathing has often been found to be decidedly injurious, and ſeldom beneficial in any cutaneous complaints. The oedema of the ankles of females may ſometimes be removed, as Dr. Darwin has obſerved, by going a few times into the warm bath.

It appears from Dr. Higgins's experiments, as quoted by Buchan, that 1000 grains of water taken up at Brighthelmſtone contain 30 of pure ſea-ſalt, 13 of muriate of magneſia, and $1\frac{1}{2}$ of ſelenite, or ſulfate of lime; the muriate of magneſia being to the common ſalt nearly as 3 to 7. Hence it is very juſtly inferred that the effects of ſea-water muſt be materially different from thoſe of common ſalt. When ſea-water is employed as a cathartic, the author recommends that half a pint be taken on going to bed, and as much more in the morning: this, he ſays, is more effectual than a much larger quantity taken at once, and ſeldom produces thirſt; he obſerves that this medicine does not, like moſt other purgatives, produce a ſubſequent conſtipation. In ſmall quantities it appears to improve the digeſtion, and has been of uſe in deſtroying aſcarides, as well as in relieving ſcrofulous diſeaſes, and nephritic complaints. Dr. Buchan thinks it probable, that the anthelminthic virtues of the coralline, frequently employed

employed on the coaſts of the Mediterranean, are principally derived from the ſalt that it contains.

In the chapter which relates to the ſalubrity of the ſea air, the author inſiſts, perhaps ſomewhat too much, on the effects of vegetation in purifying the atmoſphere, as well as on the greater proportion of oxygen ſuppoſed to be contained in the air of places near the ſea, neither of theſe obſervations having been ſufficiently confirmed by the lateſt and moſt accurate experiments. He ſays in its concluſion, (p. 169,) that "though certain ſtates of the conſtitution occur, in which bathing in the ſea may be attended with dangerous, and even fatal conſequences, perhaps there exiſts no modification of impaired health, confirmed pulmonary conſumption excepted, in which the invalid may not reaſonably expect to derive benefit from breathing the ſalubrious and invigorating breezes of the ſea."

The laſt chapter of the work contains ſome judicious remarks on the uſe of the warm bath. It is recommended as frequently beneficial to children, and favourable to longevity; as uſeful in debilities and irritations of various kinds, in chlorоſis, ſpaſmodic cough, cutaneous diſeaſes, gouty and rheumatic affections, and hectic fever; and as tending to obviate the effects of warm climates, and to remove the ſenſation of fatigue. A heat from 90° to 95° is conſidered as ſufficient; in particular caſes it may be gradually raiſed after immerſion to 100°. It has been found that immerſion in a bath of 93°, has ſometimes raiſed the thermometer in the mouth from 98° to 100°, but that the elevation was only temporary. An hour or two before dinner is conſidered as the moſt proper time for bathing, and it is remarked, that the fear of taking cold by ſubſequent expoſure to the air is totally groundleſs. Count Rumford continued the practice of bathing daily at two o'clock for thirty-five ſucceſſive days, without any inconvenience, and with the moſt beneficial conſequences. According to the experiments of Mr. Seguin, and others, quoted by Dr. Currie, it appears that its efficacy is, in great meaſure, derived from the diminution of the cutaneous perſpiration which it cauſes, at the ſame time that it prevents the eſcape of heat. The miſtaken notion that the warm bath has a tendency to relax, appears to Dr. Buchan to have been derived from its great abuſe among the Romans, who employed it at exceſſive temperatures for the purpoſe of creating a forced appetite for food.

From the minuteneſs with which we have entered into the analyſis of this work, our readers will conclude, that we conſider it as compriſing, in a ſmall compaſs, much uſeful and authentic

authentic information on an intereſting branch of medical practice, expreſſed in an agreeable and popular manner, and which may often be read with advantage, not only by an invalid, but by his profeſſional attendant.

ART. XXIV. *The Tranſactions of the Linnean Society of London. Volume VII.* 4to. pp. 355: xviii Plates. Price 1l. 11s. 6d. White, London. 1804.

THE reſpectable body, to a recent volume of whoſe Tranſactions our attention is now ſolicited, has ſubſiſted among us ſo long, and has contributed ſo largely to the public information on ſubjects of natural hiſtory, that it would at preſent be ſuperfluous to detail the motives that led to its eſtabliſhment, or the manner in which its concerns have been hitherto conducted. We ſhall proceed, therefore, without further preface, to notice the firſt article in the collection before us, which is intitled,

I. *A new Arrangement of the Genus* ALOE, *with a chronological Sketch of the progreſſive Knowledge of that Genus, and of other ſucculent Genera.* By Adrian Hardy Haworth, Eſq. F. L. S.

More than half a century has now elapſed ſince the rage for creating ſyſtems began to ſubſide, and ſince the deſpair of being able to arrange vegetables according to their affinities, in a natural method, led the way to a very general acquieſcence in the artificial diſtribution of them in the claſſes and orders of Linnæus. To the prevalence of the Linnean ſyſtem, notwithſtanding the faults with which it is chargeable, the rapid progreſs of Botany within the period alluded to, may (we are of opinion) be, in a great meaſure, juſtly aſcribed. It has diſarmed the temerity of projectors who were diſſatisfied with the plan, and united the effort of ſober and induſtrious inquirers to ſecure the durability of the edifice by remedying the defects of its execution. Among thoſe whoſe talents have been thus laudably employed, a diſtinguiſhed rank muſt be aſſigned to the Monographers of intricate and comprehenſive genera. The diſcovery of new ſpecies frequently impoſes a neceſſity of new modelling the brief characters originally uſed as notes of diſcrimination; and the vaſt additions made of late to ſeveral of the genera, render it expedient to abridge the toil of inveſtigation by a judicious introduction of ſections and ſubdiviſions. The ſpecies of *aloe* were favorite plants with many of the Botaniſts who preceded Linnæus; but, with a few exceptions, their characters were ſo

vague and indeterminate, that Linnæus, who was not provided with proper means of aſcertaining the truth, has manifeſted an extraordinary propenſity to contract the number of ſpecies, and to conſider the majority of them in the light of accidental varieties. In this procedure he was probably influenced by a prevalent but, perhaps, erroneous idea, that few of them are truly and originally diſtinct, and that they are fluctuating and inconſtant if raiſed from ſeed. This belief, as far at leaſt as two ſpecies are concerned, is not countenanced by the experience of Mr. Haworth. Many ſpecies which had been degraded by Linnæus, were afterwards reſtored to their proper ſtation by Thunberg, who likewiſe reformed the ſpecific characters, and augmented the genus by four new plants from the Cape of Good Hope. In apologizing for the apparent ſupineneſs of other writers, we may remark that the inveſtigation of this genus is attended with peculiar difficulties. The ſpecies are *extra-European*; and though the culture of many of them is tolerably underſtood, yet a few of them ceaſe to thrive when tranſplanted into our gardens; and others ſeldom or never have been brought to perfection in this climate. To which we may add that their time of flowering is very liable to vary; and that, in any cognizable ſhape, they are incapable of being preſerved in an *herbarium*.

Without adverting to the chronological ſketch prefixed to this article, we ſhall endeavour to furniſh our readers with a correct repreſentation of Mr. H.'s arrangment: lamenting however, that want of room compels us to omit his ſpecific diſtinctions, which appear to be well expreſſed, and drawn up with great judgment, on an actual inſpection of the living plants; which, the author informs us, it was found indiſpenſably neceſſary to have conſtantly before him.

I. PARVIFLORÆ.

Corollis plerumque vireſcentibus, laciniis ſæpius revolutis.

A. *Rigidæ*, plerumque caulеſcentes, foliis rigidiſſimis integris.
B. *Acaules*, foliis mollioribus integris radicalibus.
C. *Ciliatæ*, foliis ciliato-ſpinoſis radicalibus.
D. *Margaritaceæ*, acaules, foliis multifariis margaritaceo-tuberculatis.

II. CURVIFLORÆ.

Corollis ob-clavatis curvatis, corallii colore, apicibus vireſcentibus.

A. *Bifariæ*, acaules, foliis plerumque bifariis.
B. *Pictæ*, caulеſcentes, foliis pictis, caule tortuoſa.

III. GRANDIFLORÆ.

III. GRANDIFLORÆ.

Corollis cylindraceo-ovatis, corallii colore, apicibus vireſcentibus.

A. *Anomalæ*, foliis bi-vel tri-fariis integris.

B. *Acaules*, foliis multifariis ciliato-dentatis radicalibus.

C. *Subacaules*, foliis multifariis ciliato-ſpinoſis, propaginibus radicalibus.

D. *Suffruteſcentes*, foliis multifariis, dentato vel denticulato-ſpinoſis.

a, propaginibus radicalibus.

b, dichotomæ, propaginibus caulinis, caule ſenecto per-craſſo dichotomo.

E. *Fruteſcentes*, foliis multifariis ciliato dentatis.

The plants in the following liſt, diſtinguiſhed by being printed in Italic characters, are ſuch as have not hitherto had a ſpecific name aſſigned to them.

I.

A. A. viſcoſa; *aſpera; folioloſa;* imbricata (*A. ſpiralis* α WILLD.); *tortuoſa;* pentagona (*A. ſpiralis* β. WILLD.); *ſpiralis*; *expanſa*, VAR β major; *albicans.*

B. *cymbiformis; reticulata;* retuſa.

C. *mirabilis;* pumila (*A. arachnoides* β. WILLD.); *tranſlucens;* arachnoides (*A. arachnoides* α. WILLD.)

D. *recurva; attenuata;* margaritifera, VAR α *maxima*, β *major* (*A. marg.* α. WILLD.) γ *minor* (*A marg.* β. WILLD.), δ *minima* (*A. marg.* γ. WILLD.)

II.

A. verrucoſa; *intermedia;* Lingua, α anguſtifolia, β *latifolia*, γ *longifolia*, δ *angulata*, ε *multifaria;* nigricans (*A. Lingua craſſifolia*, WILLD.); carinata, var. β *ſubglabra.*

B. pulchra (*A. maculata pulch.* WILLD.); obliqua (*A. maculata obliq.* WILLD.)

III.

A. variegata; plicatilis.

B. humilis, *var* α *incurva; tuberculata;* ſuberecta, *var* β.

C. *prolifera* (*A. perfoliata* δ. WILLD.); depreſſa (*A. perfol.* ζ. WILLD.); *virens.*

D. a. ſaponaria, minor (*A. picta* β. WILLD.), obſcura (A. picta α. WILLD.), *latifolia;* ferrulata; *ſtriata;* lineata; glauca, *var* β; Barbadenſis.

D. b. ſoccotrina; purpuraſcens (*A. ſinuata* WILLD.)

E. arboreſcens (A. perfol. β. WILLD.); Africana (A. perfoliata α. WILLD.); dichotoma; ferox; *ſupralævis* A. perfol. ι. WILLD.); *flaviſpina; albiſpina;* mitræformis, var. α. elatior (A. perfol. κ WILLD), β. *humilior*, γ. *ſpinoſior; brevifolia.*

The *A. aſpera*, a native of the Cape, was introduced into this country by Mr. Maſſon. This ſpecies is of difficult culture, and probably will not long remain alive in Europe. The *A. foliolosa*, for which we are indebted to the ſame indefatigable collector, is the leaſt-leaved of all the aloes. The leaves are, at the ſame time, the thinneſt, the moſt numerous, and the moſt crowded. The *A. ſpiralis* is unknown in any collection, except the author's. It is very much like *A. pentagona*, but ſomewhat larger. The plant is ſo much twiſted as to make the poſition of the leaves appear multifarious. In *A. pentagona* they are uſually in five regular angles. *A. albicans* is the largeſt-leaved ſpecies, and by far the fineſt in the ſection in which it is placed. Its ſtemleſs habit approximates it to the next ſubdiviſion; from which however it is excluded by the extreme rigidity of its leaves.—*A. cymbiformis* has very much the air of a *ſempervivum*. Its excavated leaves give it a very ſtrange appearance. This and the *mirabilis* of the next ſub-diviſion are two extremely ſingular ſpecies; and ſuch, had they been figured in the dark ages of botany, as we ſhould have fancied more like the productions of art than the genuine children of nature. A. *mirabilis* is a link which connects, but very abruptly, the remote ſpecies *retuſa* and *pumila*. *A. Barbadenſis* and *A. ſtriata* are the ſofteſt-leaved and moſt ſucculent of all the aloes. The former is the only ſpecies with yellow flowers. In the courſe of ſtudying this genus, Mr. Haworth found the *ſtructure* and *color* of the flowers, and the *poſition* and *color* of the leaves, tubercles, and ſpines, of more conſequence, as ſpecific criteria, than the ſhapes of thoſe leaves, arms, and flowers.

Beſide the ſpecies and varieties already enumerated, Mr. Haworth has a knowledge, from figures and deſcriptions only, of eight ſpecies, an account of which, in a ſyſtematical manner, is added as a neceſſary appendix to his arrangement.

II. *On the Germination of the Seeds of Orchideæ*. By Richard Antony Saliſbury, Eſq. F. R. S. and L. S.

It has been very generally believed, that plants belonging to this tribe rarely, if ever, produce fertile ſeeds. An idea ſo very irreconcileable with general analogy, excited conſiderable ſuſpicion in the author's mind, and led him to proſecute the ſubject by experiment. After premiſing a ſhort deſcription of the organs of reproduction, the ſtructure of which in the *Orchideæ* is extremely ſimple, Mr. Saliſbury remarks that the late Dr. Gärtner refuſed to acknowledge the exiſtence of *Pollen* in any individual of this order: and if, he continues, the diſpute muſt be decided by *figure*, to the excluſion

cluſion of every other property, few perſons will heſitate to adopt the ſame concluſion. But if the eſſence of the term conſiſt in a power of fecundation, it may be applied without ſcruple to the ceruminous and elaſtic ſubſtance, which is lodged in the cavities of the *antheræ*. By moiſtening with this ſubſtance the *ſtigmata* in ORCHIS *maſcula, Morio, latifolia, maculata, apifera;* of OPHRYS *ſpiralis*; EPIDENDRUM *cochleatum;* and various ſpecies of LIMODORUM, perfect ſeeds were obtained, which germinated freely on moiſt patches in the author's hot-houſe. This memoir is accompanied with a plate illuſtrative of the appearances obſerved.

III. *Account of the Tuſſch and Arrindy Silk Worms of Bengal.* By William Roxburgh, M. D. F. L. S.

In this memoir we are brought acquainted with two inſects, whoſe productions are not unlikely, at ſome future time, to furniſh the ingenuity of our artiſans with a valuable article of manufacture. The *Phalæna Paphia*, or Tuſſeh ſilk-worm, is found in ſuch abundance in many parts of Bengal and the adjoining provinces, as to afford the natives an abundant ſupply of a moſt durable dark-coloured ſilk; which is woven into a kind of cloth much worn by the Bramins, and other ſects of Hindoos. This ſubſtance the author thinks would be highly uſeful to the inhabitants of many parts of America and the South of Europe, where a cheap, light, cool, and durable dreſs is much wanted. *Phalæna Cynthia*, (*Cramer, Tab.* xxxix. *Fig.* A.) an inſect known to the Hindoos by the name of *Arrindy*, appears to be peculiar to the interior parts of Bengal, and, ſo far as the author's information extends, to the two diſtricts only of Dinagepore and Rungpore, where the natives breed and rear it in a domeſtic ſtate as they do the common ſilk worm. The food of the caterpillar conſiſts chiefly of the *Ricinus Palma-Chriſti*, which is cultivated abundantly in every part of India, on account of the oil obtainable from its ſeed. The cocoon of this ſilk worm is remarkably ſoft, and white or yellowiſh. The filament is ſo exceedingly delicate as to render it impracticable to wind off the ſilk, which is therefore ſpun like cotton. The yarn thus manufactured is woven into a coarſe kind of white cloth, of a ſeemingly looſe texture, but of incredible durability; the life of one perſon being ſeldom ſufficient to wear out a garment made of it. The head ſircar of the factory at Jungypore had the outſide cover of a palanquin made of this material, which, when this account was written, had laſted eleven years; and ſome purdahs, which though in conſtant uſe for nine years, were not much decayed. A correſpondent of Dr. R. informs

him that he ſent a little of this ſilk to his friends in England ſome years ago; and was given to underſtand that ſeveral of our manufacturers to whom it was ſhown ſeemed to think that their countrymen in the Eaſt had been impoſing on their credulity by accounts of ſhawls made from the wool of a goat; and that the Arrindy ſilk, if ſent home, would be made into ſhawls equal to any imported from India. To complete ſcientific deſcriptions of the inſects, Dr. R. has added plates elegantly coloured repreſenting the caterpillars and the plants on which they feed; and has introduced into the ſubſtance of his paper a variety of intereſting particulars furniſhed by his correſpondents.

IV. *Deſcription of the Britiſh Lizards; and of a new Britiſh Species of Viper.* By Revett Sheppard, A. B. F. L. S.

To the catalogue of Britiſh lizards Mr. Sheppard apprehends that he has been fortunate enough to add two, if not three, that are entirely new. The new ſpecies of viper is thus deſcribed:

"Coluber Cæruleus. blue bellied viper.

"Head, upper part light brown, marked with a dark-brown ſpot in the form of a V; under part, ſcales yelloviſh white, edged with dull red.

"Irides red; pupil browniſh black.

"Scales on the margin of the upper jaw yellowiſh white, edged with brown: jaws ſomewhat compreſſed ſideways.

"Back light brown, and a ſtring of dark brown rhomboidal marks reaching from the head to the end of the tail.

"Sides ſpotted with dark brown.

"Belly, the ſcuta light blue, ſpotted, particularly at the edges, with white: the firſt row of ſcales which margin the ſcuta is edged with white.

"Length 21 inches 10 lines; head 10 lines: from the head to the anus 18½ inches; and from the anus to the tip of the tail 2¼ inches. In the laſt diviſion the firſt two inches on the under part are blue, edged with red, and the remaining half inch yellow, ſpotted with white." (p. 56.)

V. *Deſcription of Bos Frontalis, a new Species from India.* By Aylmer Bourke Lambert, Eſq. F. R. S. V. P. L. S.

BOS FRONTALIS.

"Bos nigro-cærulescens, faſciâ frontali griſeâ, cornibus craſſis remotis brevibus, caudâ ſubnudâ gracili apice piloſâ.

"*Obſ.* Vellus molle. Juba nulla. Labium inferius apice album, pilis hiſpidis ſetoſum. Faſcia frontis plumbea, baſes cornuum includens. Cornua pallida."

From a ſubſequent article in this volume, we learn, that this animal, known in India by the name of Gyall,

"Is

"Is a ſpecies of cow peculiar to the mountains which form the eaſtern boundary of the province of Chittagong, where it is found running wild in the woods; and it is alſo reared as a domeſtic animal by the Kookies, or Lunclas, the inhabitants of thoſe hills. It delights to live in the deepeſt jungles, feeding on the tender leaves and ſhoots of the bruſhwood; and is never met on the plains below, except when brought there. Such of them as have at any time been kept by the gentlemen at Chittagong, have always preferred browſing among the thickets on the adjacent hills, to feeding on the graſs of the plains.

"It is of a dull heavy appearance, yet of a form that indicates both ſtrength and activity; and approaches nearly to that of the wild buffalo. Its head is ſet on like the buffalo's, and it carries it much in the ſame manner, with the noſe projecting forward; but in the ſhape of the head it differs conſiderably from both the buffalo and cow, the head of the gyall being much ſhorter from the crown to the noſe, but much broader between the horns than that of either. The withers and ſhoulders of the gyall riſe higher in proportion than thoſe of the buffalo or cow, and its tail is ſmall and ſhorter, ſeldom falling lower than the bend of the ham. Its colour is in general brown, varying from a light to a deep ſhade: it has at times a white forehead and white legs, with a white belly and bruſh. The hair of the belly is invariably of a lighter colour than that of the back and flanks. The gyall calf is of a dull red colour, which gradually changes to a brown as it advances in age.

"The female gyall receives the bull at the age of three years; her time of geſtation is eleven months, when ſhe brings forth, and does not again admit the male until the ſecond year thereafter; thus producing a calf once in three years only. So long an interval between each birth muſt tend to make the ſpecies ſo rare. In the length of time ſhe goes with young, as well as in that between each conception, the gyall differs from the buffalo and cow. The gyall does not give much milk, but what ſhe yields is nearly as rich as the cream of other milk. The calf ſucks his dam for eight or nine months, when he is capable of ſupporting himſelf. The Kookies tie up the calf until he is ſufficiently ſtrong to do ſo.

"The gyalls live to the age of from fifteen to twenty years: they loſe their ſight as they grow old, and are ſubject to a diſeaſe of the hoof, which often proves fatal at an early age. When the Kookie conſiders the diſeaſe beyond the hope of cure, he kills the gyall and eats the fleſh, which conſtitutes his firſt article of luxury.

"The Kookies have a very ſimple method of catching the wild gyalls. It is as follows: On diſcovering a herd of wild gyalls in the jungles they prepare a number of balls, of the ſize of a man's head, compoſed of a particular kind of earth, ſalt, and cotton; they then drive their tame gyalls toward the wild ones, when the two ſoon meet and aſſimilate into one herd, the males of the one attaching themſelves to the females of the other, and *vice verſa*. The Kookies now ſcatter their balls over ſuch parts of the jungle as they think the herd moſt likely to paſs, and watch its motions.

The gyalls, on meeting theſe balls as they go along, are attracted by their appearance and ſmell, and begin to lick them with their tongues; and reliſhing the taſte of the ſalt, and the particular earth compoſing them, they never quit the place until all the balls are deſtroyed. The Kookies having obſerved the gyalls to have once taſted their balls, prepare what they conſider a ſufficient ſupply of them to anſwer the intended purpoſe, and as the gyalls lick them up they throw down more; and to prevent their being ſo readily deſtroyed they mix the cotton with the earth and ſalt. This proceſs generally goes on for three changes of the moon, or for a month and a half; during which time the tame and wild gyalls are always together licking the *decoy* balls; and the Kookie, after the firſt day or two of their being ſo, makes his appearance at ſuch a diſtance as not to alarm the wild ones. By degrees he approaches nearer and nearer, until at length the ſight of him has become ſo familiar that he can advance to ſtroke his tame gyalls on the back and neck without frightening away the wild ones. He next extends his hand to them, and careſſes them alſo, at the ſame time giving them plenty of his decoy balls to lick; and thus in the ſhort ſpace of time mentioned he is able to drive them along with his tame ones to his parrah, or village, without the leaſt exertion of force or coercion: and ſo attached do the gyalls become to the parrah, that when the Kookies migrate from one place to another, they always find it neceſſary to ſet fire to the huts they are about to abandon, leſt the gyalls ſhould return to them from the new grounds, were they left ſtanding. Experience taught the Kookie the neceſſity of thus deſtroying his huts.

"It is a fact worthy of remark, that the new and full moon are the periods at which the Kookies generally commence their operation of catching the wild gyalls, from having obſerved that at theſe changes the two ſexes are moſt inclined to aſſociate. The ſame obſervation has been often made to me by our elephant catchers." (p. 302—305.)

VI. *Deſcription of the Eſox Saurus.* By the Rev. Thomas Rackett, M. A. F. R. S. and L. S.

An excellent figure of this uncommon ſpecies, accompanied with a conciſe character and deſcription. The ſubject from which it was taken, was caught near the Iſle of Portland, after a hard ſtorm, in the ſummer of the year 1800.

VII. *Deſcription of ſeveral Marine Animals, found on the South Coaſt of Devonſhire.* By George Montagu, Eſq. F. L. S.

During a partial reſidence for ſome years on the ſouth coaſt of Devonſhire, the attention of this inquiſitive naturaliſt was attracted to the animal productions of the ſea. In collecting the materials of a work, which has been noticed with approbation

bation in a former volume of this journal*, it was, he ſays, impoſſible to examine the maſs of matter which was frequently brought up along with the *teſtacea*, without having the mind ſtrongly ſolicited from the immediate object of purſuit, by the beauty, ſingularity, and wonderful variety of the animals with which that element is replete. In the courſe of his inquiries, he ſoon found that ſo far as marine animals are concerned, our knowledge of natural hiſtory is far from being brought to maturity.

After a general ſtatement of his diſcourſe, he proceeds to lay before the Society, a few ſpecimens of his induſtry and ſucceſs. Among the *cruſtacea*, he remarks that the genus *Cancer* is much more numerous than has generally been imagined; and that while ſome have been deſcribed as mere objects for the microſcope, others of ſuperior ſize can be ſuppoſed to have eſcaped obſervation merely by their locality. Under the denomination of *C. Phaſma*, now, for the firſt time, well figured, the author comprehends the *C. atomos* and *C. linearis* of the *Syſt. Nat.* the identity of which has been ſupported by Dr. Pallas by very convincing arguments. The reſemblance of this animal in ſtructure to the *Oniſcus ceti* would have led us to refer both to the ſame genus; and we are rather ſurpriſed that the neceſſity of ſuch a removal did not ſuggeſt itſelf to Colonel Montagu, more eſpecially after peruſing his doubts reſpecting the claſſification of a former ſpecies. The *C. Scorpioides* is a very ſingular ſpecies. The tail, which is longer than the body, conſiſts, like that of a ſcorpion, of eight tumid articulations. It is to be lamented, that both the deſcription and figure are incomplete, being taken from a mutilated ſpecimen. The reſemblance at firſt ſight of the *Oniſcus cylindraceus* to the *O. Balticus* of Pallas, led us to imagine that they formed but one ſpecies; but on turning to the deſcriptions we found the points in which they differ ſufficiently numerous to diſcountenance the ſuppoſition.

In his account of the *Gordius aquaticus*, or ſea long worm of Borlaſe, we meet with a variety of intereſting facts.

"Its expanſion and contraction," ſays Col. M. "are ſo unlimited, that it is ſcarcely poſſible to aſcertain the utmoſt length of this worm. One, which was eſteemed to be about eight feet long, was put alive into ſpirits, and inſtantly contracted to about a foot, at the ſame time increaſing double the bulk, which originally was about the diameter of a crow's quill. In this vaſt exertion of the muſcles, the animal is generally divided at thoſe parts which had been twined into knots. This worm is very difficult to preſerve perfect

* Imperial Review, Vol. III. p. 63.

perfect without contraction; for, if suffered to die in its natural element, one part will decay while the other is alive; and the addition of any thing offensive produces contraction, even fresh water."

Concerning the animal which Colonel M. denominates *Sipunculus Strombus*, we select the following particulars:

"This animal is parasitical, taking possession of the old shells of *Strombus Pes Pelecani*, to which it seems peculiar, for in no one instance have we been able to discover it elsewhere. It is remarkable that the aperture of this shell, which is contracted, or narrow, is ill calculated for the habitation of *Cancer Bernardus*; and of course becomes better adapted for the dwelling of the *Sipunculus*, as not likely to be destroyed, or molested, by that predatory insect.

"Where this species of *Sipunculus* is found, old shells of *Stromb. Pes Pelecani* are not uncommon; and not a single instance occurred that such were not taken possession of by this animal: and as the *Hermit Crab* is more plentiful in the same place than we ever remember to have seen it elsewhere, occupying every other deserted turbinated or spiral shell, from the small *Turbo pullus* to the *Buccinum undatum*, it must be concluded that the adopted habitation of this *Sipunculus* is not suited to the form of that crab; a matter of no small proof of the wise dispensations of an Omnipotent Power, the source of original instinct, with which animals, even the most contemptible in appearance, are endowed for the preservation of their species.

"This animal further secures itself from the attack of other enemies by closing up the aperture of the shell (except a round hole sufficient for its body) with sand strongly agglutinated together; and this as far in the shell as is necessary for contracting it to the size required. Within this the larger or posterior part of the animal, as far as the vent, is concealed in the spiral volution, protruding occasionally that part only which is capable of internal retraction.

"It differs from *S. nudus* in being much shorter and verrucose for a considerable space behind the vent, in not having so sudden a decrease in size before the vent, and in the fringe or feelers round the mouth being longer; it has also much greater retractile powers in proportion to its length, and when wholly receded within the shell is seldom above an inch and a half long." (p. 75—76.)

When treating of the *Aplysia* viridis*, another animal which Colonel M. has added to the British catalogue, he takes occasion to vindicate the *A. depilans* from the odious faculty which, apparently, caused it to be so denominated; and observes, that

* Colonel M. writes *Laplysia*. But it is surely time to discard a barbarous term, which can claim no better origin than a blunder of the press.

he

he has had various opportunities of examining theſe animals on the coaſt of Devonſhire, and has frequently handled them with impunity: for they neither affect the hand nor the olfactory nerves, but are as deſtitute of ſmell as of any depilatory power. The beautiful purple dye which they diſcharge ſo copiouſly might, the author thinks, be turned to ſome advantage, if a method of fixing it could be deviſed. He has ſeen ſeveral yards of a fiſhing net ſtained with it under water; and it is with difficulty waſhed off the hands. The animals deſcribed in this paper amount to twenty-four; and conſiſt of ſix ſpecies of *Cancer;* two *Oniſci*; two *Gordii;* one *Sipunculus*; one *Aplyſia;* five ſpecies of *Doris*; one *Amphitrite*; five ſpecies of *Nereis;* and one *Aſterias.*

VIII. *Deſcriptions of four new Britiſh Lichens.* By Dawſon Turner, Eſq. M. A. F. L. S.

It would be impoſſible, by an attempt to epitomize it, to convey to our readers any adequate idea of this excellent paper. The author's merit in this department of ſcience has received a due tribute of applauſe from thoſe who are beſt qualified to beſtow it.

IX. *Deſcriptions of ſome Species of Carex from North America.* By Edward Rudge, Eſq. F. L. S.

Deſcriptions and figures of five ſpecies of *Carex*, which appear not to have been noticed by former writers.

X. *Remarks upon the Dillenian Herbarium.* By Dawſon Turner, Eſq. F. R. S. A. S. and L. S.

"The *Hiſtoria Muſcorum* of Dillenius," ſays the writer of theſe remarks, "is a work of ſo great authority, as well for the excellence of its figures and deſcriptions, as for the extenſive knowledge and conſummate accuracy of its author, that it muſt be regarded as the ſureſt medium now left us of becoming acquainted with the various tribes of Moſſes and Algæ deſcribed by Linnæus, and all ſubſequent writers down to the preſent day. In referring to this work, however, it has not unfrequently happened that differences of opinion have ariſen as to the plants really deſigned by the learned Profeſſor; and a confuſion of ſynonymy, than which nothing is more perplexing or injurious to ſcience, has neceſſarily been the conſequence. To remove this in ſome meaſure appeared a taſk likely to be not altogether uſeleſs, and the only certain mode of effecting it was evidently by a careful reference to the original ſpecimens."

With this view the author, in company of a friend, paid a viſit to Oxford, and obtained permiſſion to inſpect the *Herbarium* of Dillenius. To their great ſatisfaction they found the ſpecimens in general in good preſervation, and capable of affording

affording complete proof of the accuracy of their former poſſeſſor. Circumſtances did not allow them to devote more than one day to the inveſtigation; but as that was both long and uninterrupted, it ſerved them to look through the *conferva ulvæ*, *lichens*, and *hypna*, with ſome attention: and to take a haſty view of the remaining genera of moſſes, but not to open a ſingle ſheet of the *Jungermanniæ*. The ſubmerged *Algæ* were their leading object; of theſe, therefore, Mr. T. notices every individual; but in the moſſes and lichens no ſpecies is mentioned, except where it appeared that the plants deſigned by Dillenius have been miſunderſtood. We feel, from the peruſal of this article, ſo deep an impreſſion of Mr. T.'s conſummate ſkill and ſtrict integrity, that we cannot refrain from expreſſing a wiſh that he may again viſit Oxford, and avail himſelf of the contents of the *Herbarium*, in order to complete a new edition of the work of Dillenius, with ſuch additions as he has himſelf pointed out at the cloſe of his remarks. Such a re-publication has been long a deſideratum in botanical literature, and among his connections, we apprehend, it would not be difficult to find a colleague to undertake thoſe ſubjects on which the writer's diffidence might forbid him to engage.

XI. *Deſcription of ſome Foſſil Shells found in Hampſhire.* By William Pilkington, Eſq. F. A. S. and L. S.

A ſelection of ten ſpecies not noticed by Mr. Brander, with figures, ſpecific characters, and ſhort deſcriptions.

XII. *An Hiſtorical Account of Teſtaceological Writers.* By William George Maton, M. D. F. R. S. and L. S. and the Rev. Thomas Rackett, M. A. F. R. S. and L. S.

This elaborate article, which occupies more than a third part of the volume before us, contains, along with much ſound criticiſm, a more complete enumeration of writers on the *Teſtacea* than we have any where beſide met with. From the ſentiments of the authors we have ſeldom found reaſon to diſſent, but wiſh that they had ſtudied compreſſion, and acted more frequently on the principle of excluſion. We are happy to find that they have, for many years, devoted much attention to the ſtudy of this department of natural hiſtory; and that they are preparing a ſyſtematic catalogue and deſcription of ſuch ſpecies of *teſtacea* which may be conſidered as natives of the Britiſh iſlands. Our limits forbid us to make large ſelections, but for the information of our readers we ſhall introduce two paſſages, of which one relates to Linnæus; and the other to the laſt editor of the *Syſtema Naturæ*, and his Engliſh tranſlator.

"There

"There has been a very general belief that leſs attention was devoted by Linnæus to the hiſtory and arrangement of the Teſtacea, than to any other order of the animal kingdom; and that he even thought their external coverings, or ſhells, ſcarcely worthy of becoming ſubjects of ſcientific diſtribution. Whatever may have been the origin of this belief, it certainly does not appear to us to be warranted by any examination of the Syſtema Naturæ itſelf, not even of its earlieſt editions. The original ſtate of that extraordinary work (and it was in this that Linnæus firſt touched on teſtaceology) did not indicate, perhaps, leſs happy reformation of method with regard to the teſtacea, than to other parts of organized nature; its deficiencies were thoſe from which few other portions of the performance were exempt, and which were naturally to be expected in all, on the firſt ſketch of ſo grand and ſo heterogeneous a ſubject. The great aim of the author being ſimplicity, he ſeems to have at firſt over-reached it rather than to have fallen ſhort, and the conſequences are obvious. His original genera of ſhells were too few, being only eight in number; viz.

1. Cochlea 3. Cypræa 5. Patella 7. Concha
2. Nautilus 4. Haliotis 6. Dentalium 8. Lepas.

In ſome of the ſubſequent editions of the Syſtema, two or three more genera were added; but at length, in the 10th they were augmented to thirty-two, which are only three leſs than Linnæus employed on any occaſion afterwards. The edition of 1758 is, therefore, to be conſidered as the period at which he may be ſaid to have perfected his principles of teſtaceological arrangement, though, in fact, the principles themſelves underwent no material change from the beginning, (a proof that our illuſtrious author never treated the ſubject with careleſſneſs,) the only alteration that he deemed neceſſary being in the number of the genera: he accordingly broke that of cochlea into conus, bulla, voluta, buccinum, ſtrombus, murex, trochus, turbo, helix, and nerita, and that of concha into chiton, pholas, and the bivalvia. The faults of the teſtaceological ſyſtems which preceded Linnæus's may be readily deduced from the remarks made in various parts of this paper.—Theſe ſyſtems laboured under extreme difficulty of application, not only on account of the multitude of diviſions and ſubdiviſions which were deemed neceſſary by their reſpective authors, but alſo of the practice of founding generic diſtinctions on variations of general contour. Such variations being endleſs, there was conſequently no end to the multiplication of families, and ſpecies became correſpondently ſparing. There was only one author who can be ſaid to be free from reproach on this ſcore, and that was Adanſon; he, however, ſet out upon principles of arrangement eſſentially different from thoſe of the generality of writers on this ſcience; and, by making the contained animal almoſt excluſively the baſis of his ſyſtem, neceſſarily became limited in the choice of generic characters. But to the eſtabliſhment of characters purely zoological, the objections are ſtill ſtronger than to the being guided by the general form of the ſhell. Independently of the very ſmall extent to which our knowledge

knowledge of the molluſca has hitherto been carried, it appears to us, that, from the very nature of theſe animals when provided with a portable place of retreat from danger, they can never preſent thoſe permanent and obvious points of diſtinction ſo indiſpenſable to an apt and commodious inveſtigation of all natural objects. Wherein does the animal differ from an unſhapen maſs of lifeleſs matter when coiled up within its ſhelly habitation? And how are its natural ſhape and appendages to be examined, but by the knife of an anatomiſt? In fact, it is reaſonable to conclude, that innumerable teſtaceous animals muſt ever remain unknown to us, except by the exuviæ accidentally thrown upon the ſhores after their death: many of them appear to inhabit inacceſſible receſſes of the ocean, and others part with life on the point of being removed from their native element. To place his ſyſtem beyond the reach of thoſe objections which preſented themſelves to all that had been hitherto propoſed, Linnæus was obliged to ſtrike out ſome principles of diſcrimination wholly different from any before exemplified; and that ſagacity with which he ſeized new and admirable guidances to methodical arrangement in other parts of the dominions of nature, fortunately aſſiſted him alſo in this. After having convinced himſelf of the futility of forming a ſyſtem of teſtaceology ſolely on the ſtructure of the animal, or even making the latter at all concerned in the ſpecific diſtinctions, he aſtoniſhingly ſimplified the whole ſcience by dividing teſtacea only into the three obvious families of univalves, bivalves, and multivalves, with ſubordinate genera, characterized by variations of particular parts of the ſhells. The hinge in bivalves, and the aperture or mouth of univalves, as it was a permanent character, ſo was it alſo leſs multiform than any other that could have been choſen. The general outline, however, was not wholly neglected: it ſerved to form an uniting character for ſuch as may be called natural families of ſhells, which were diſtributed into ſuitable diviſions ſubordinately to the artificial genus, ſo as to become an aſſiſtance, inſtead of an embarraſſment, in the inveſtigation of ſpecies. Thus the terms truncati, pyriformes, elongati, and laxi, became uſeful demarcations in the genus conus, without creating the confuſion which muſt always be incident to too great a number of regular genera, eſpecially when thoſe genera are formed, (as was the practice of the generality of preceding authors,) from external figure only. In a few genera it was neceſſary to deviate a little from theſe principles, (and what ſyſtem can be free from anomalies?) yet they are too few to affect the general ſimplicity; and we ought to be ſurpriſed only at the characters holding good ſo far as they do. But our great author was not wholly inattentive to the creatures for which the beautiful and endleſsly-diverſified receptacles that he had characterized were deſigned. Among the generic marks was included the name of the molluſcous inhabitant; or, where the animal differed from any which had a place in other parts of his ſyſtem, he deſcribed it at length. Thus was a method eſtabliſhed, which, though not ſpeculatively regular, poſſeſſes ſo much practical utility, that we cannot heſitate

heſitate to preſer it to any hitherto made known to the world. Whatever improvements it may undergo, (and of improvements all human ſyſtems muſt neceſſarily be ſuſceptible,) there is in our minds no doubt that the general foundations will ſtand the teſt of ſcientific application for ages; a ſentiment which will appear the leſs bold, if we quote, in aid of our aſſertions, thoſe of a very diſtinguiſhed naturaliſt of a neighbouring country; in which, if, after almoſt unprecedented pains had been taken, both by himſelf and by an indefatigable contemporary, for the formation of a perfect ſyſtem, the principles of Linnæus remain unimpaired, we may fairly relinquiſh the expectation of being preſented with any leſs exceptionable. "On peut dire," ſays M. Lamarck, "que Linné a établi les vrais principes qu'on doit ſuivre dans l'etude et la détermination des coquilles, et qu'il a poſé les baſes de cette intéreſſante partie de nos connoiſſances." — Mem. de la Soc. d'Hiſt. Nat.— P. 63. (p. 179.)

"In concluding our remarks on the works of Linnæus, we ought to take ſome notice of the editor of his Syſtema, Gmelin, who has increaſed the number of the vermes teſtacea to 2334. If the whole of this number were founded on unimpeachable authorities, and if the writer had in other reſpects inſpired confidence in his correctneſs, as well as in his knowledge of the ſubject, great indeed would have been the obligation of naturaliſts to this laborious publiſher. Unfortunately, however, his errors are innumerable in this part of the Syſtema, with which he ſeems to have been leſs converſant than with any other; and ſo little dependence is there on his references and ſynonyms, that the ſame figure is frequently found to be quoted for ſpecies moſt widely different from one another; and even the ſame ſpecies, in more than one inſtance, is deſcribed twice. A writer who ſhould undertake to rectify theſe errors, would perform a truly valuable ſervice to teſtaceology. Such an opportunity preſented itſelf to a countryman of ours, who has recently put the Syſt. Nat. into an Engliſh dreſs, and who has profeſſed having availed himſelf of the improvements and additions of later naturaliſts; yet we cannot find that Dr. Turton has done more than having trodden in the ſteps of Gmelin, not perceiving even the moſt glaring of his inadvertences. It would be wholly uſeleſs and ſuperfluous, therefore, to aſſign any place to the Engliſh editor of Linnæus's Syſtema, but that of a mere tranſlator. (p. 182.)

XIII. *An Illuſtration of the Graſs, called by Linnæus Cornucopiæ Alopecuroides.* By James Edward Smith, M.D. F.R.S. P.L.S.

The original ſpecimen of *C. Alopecuroides* was ſent to Linnæus by Profeſſor Arduino, ſome time between the publication of the ſecond edition of the *Species Plantarum* and that of the firſt *Mantiſſa*. Its moſt ſtriking character, viz. a membranous cup embracing the lower part of the ſpike, determined Linnæus to arrange it under his genus *Cornucopiæ*, though its reſemblance

reſemblance to *Alopecurus pratenſis*, and ſome of the ſpecies of *Phalaris* did not eſcape his notice. Dr. Smith has, in another place*, remarked that Linnæus deſcribed his *Phalaris utriculata* on the authority of other writers, without ſeeing the plant: a circumſtance which may account for his very erroneous ſuppoſition of its not being really diſtinct from the *P. paradoxa*; and likewiſe for his not perceiving that it was in fact an *Alopecurus*. On examining *P. utriculata*, in order to complete its deſcription for the *Flora Græca* of the late Dr. Sibthorp, it was found to be decidedly in habit and character an *Alopecurus*. This diſcovery led to an examination of the *Cornucopiæ alopecuroides;* but, on comparing it with *Alopecurus pratenſis*, to which Linnæus ſays it is ſo nearly related, the two plants proved completely diſtinct. On turning, however, to the *Phalaris*, or, as it muſt now be termed, *Alopecurus utriculatus*, Dr. Smith perceived at once that this wonderful *Cornucopiæ* was no other than a ſingular variety of that ſpecies, characterized by the cup or ruffle that unfolds the baſe of the ſpike. The rudiments of this ruffle may be detected on this graſs in its ordinary ſtate, and it does not in any inſtance run down into a ſheath. The ſtem of the original ſpecimen is much thicker than uſual, ariſing, poſſibly, from the ſame cauſe of monſtroſity which produced the dilated ruffle.

XIV. *Deſcription of ſuch Species of Chironia as grow wild at the Cape of Good Hope.* By Sir Charles Peter Thunberg, Knight of the Order of Waſa, Profeſſor of Botany at Upſal, F.M.L.S.

The ſubjects deſcribed in this paper from the living plants in their native climate, are *Ch. tetragona, nudicaulis, frutescens, jaſminoides, lychnoides, linoides, baccifera*. Of the two firſt, elegant repreſentations are given in plate XII.

XV. *Remarks on the Generic Characters of Moſſes, and particularly of the Genus Mnium.* By James Edward Smith, M.D. F.R.S. P.L.S.

After tracing the hiſtory of the genus *Mnium*, from its firſt eſtabliſhment by Dillenius to the time of Hedwig's brilliant diſcoveries, the learned Preſident points out the inſufficiency of the generic characters aſſigned, by Hedwig and his followers, to Moſſes that have a double *Periſtomium*; and concludes by ſuggeſting a mark that may ſerve to diſtinguiſh thoſe genera in which the Hedwigian characters are leaſt ſatisfactory. This

* Tour on the Continent, vol. ii. p. 293.

criterion

criterion consists in the *capsule being furrowed longitudinally;* and was indicated long ago in *English Botany*, under *Bartramia*, though it has not till lately been adverted in *Mnium*. The author, however, is persuaded, that it is equally certain in both.

"It is chiefly seen in the ripe fruit; and the number of furrows is sixteen, answerable to the teeth of the outer fringe. It keeps the real *Mnia* of Dillenius together, except the first, which is *Tetraphis pellucida*, and it associates with them the *Arrhenopterum* of Hedwig. Having examined every *Bryum* that has come in my way, I can aver that a smooth capsule is essential to that genus. The same may be also said of *Hypnum;* for I know no described species with a furrowed capsule, except the *undulatum*, and perhaps the *ornithopodioides*. I have indeed lately received a number of exotic mosses with furrowed capsules from my worthy friend Mr. Menzies; these will probably come under *Mnium;* but it requires more time than I can just now bestow, to examine accurately the terminal or lateral origin of all their fruit-stalks. I am ready to allow that the character of the furrowed capsule, which appears so sufficient to characterize a genus, already indicated by its habit, in double-fringed mosses, is, in those with a single fringe, of no further importance than to distinguish species. Who does not know that the most essential principles of generic distinction, the germen inferior or superior, for instance, are sometimes of no validity at all? Witness the most natural genus of *Saxifraga*. On the other hand, what slight marks are we glad to seize, in the grasses and umbelliferous plants, to mark genera which habit shows to be distinct!"

The paper concludes with an enumeration of all the species that the author has been able to determine with certainty.

XVI. *Observations on the Zizania Aquatica.* By Aylmer Bourke Lambert, Esq. F.R.S. V.P.L.S.

In a pond, at Spring Grove, Sir Joseph Banks has a great quantity of this plant growing annually, ripening its seeds, and sowing itself round the edges; and Mr. Lambert is persuaded that it might be sown with advantage where no other grain will grow, in many shallow pieces of water in Great Britain and Ireland; especially in the latter country, where there are several extensive lakes which appear well suited for the purpose. It grows in great abundance in the lakes of Canada; and the seeds, which are as large as oats, are used by the Indians for food.

As the figures which have hitherto been given of this species of plants are very imperfect, the author has supplied the de-

fect by an excellent plate. He has likewiſe extricated the ſynonymy, in which there was ſome obſcurity.

XVII. *Obſervations on the Durion, Durio Zibethinus of Linnæus.* By Mr. Charles König, F.L.S.

The characters of this genus have hitherto reſted on very inadequate authority. Linnæus, who firſt introduced the *Durio* as a genus, in the 13th edition of the *Syſt. Plant.* had never ſeen any part of the plant; and therefore took the generic character from the *Herbarium Amboinenſe:* a work, as the author obſerves, very uſeful upon the whole for aſcertaining the general habit and the hiſtory of the vegetables of which it treats; but ſcarcely in any inſtance ſufficient, either by its delineations or deſcriptions, to convey an adequate idea of the parts of a plant, or to be depended on for eſtabliſhing generic characters. In the preſent inſtance, it happened unfortunately, that Rumpf's figure of the flowers of the Durion does not even expreſs their habit, nor can any knowledge be derived from his deſcription, which, as might naturally be expected, bears teſtimony of the period in which it was compoſed. In one particular Linnæus was miſled by conſulting the Latin tranſlation inſtead of the Dutch original; and a miſapprehenſion, originating in the ſame ſource, probably, induced M. De Juſſieu to refer it to his natural order of *Capparides;* though, as would appear from Mr. König's deſcription, it belongs more properly to the *Malvaceæ.* From the remarks with which this paper concludes, we learn that

"The *Durio* is not found in the weſtern parts of India, but begins in Malacca, and is continued on through Java, Madura, Borneo, the Celebes and all the Moluccas. Rumpf, and other ocular witneſſes, deſcribe its thin and ſpreading head as ſupported by an angular, and, as it were, winged ſtem, covered with an even and greyiſh yellow bark, which diſtinguiſhes this tree among all others. The leaves are alternate, from four to five inches in length, oblong, acuminate, entire, rather plaited at the baſe, above ſmooth and of a deep green hue; below covered with minute ruſt-coloured ſcales, and marked by a ſtrongly elevated longitudinal rib, emitting diſtinct and arcuate lateral branches. Their ſtalks are an inch long, fleſhy, ſwoln, and likewiſe covered with minute ſcales. No ſtipules were obſervable in thoſe ſmall branches which fell under my examination, but it appeared as if there were ſome traces of their former exiſtence. The infloreſcence of the *Durion* is ſuch as we ſee in all trees bearing heavy fruit, as in the jack, bread-fruit tree, &c.: the flowers are ſituate on the thicker branches, in bunches ſupported by a common ſtalk: the partial ſtalks are 2—3 inches long, roundiſh, covered, like the calyx, with minute ſcales, and inſerted in the common peduncle by means of a joint.

"There are several varieties of the *Durion* specified by Rumpf, only differing from each other by the shape and size of the fruit. The *Durion* is represented, by those who were in the habit of eating it, as the most delicious of all the fruits of India. The eatable part of it is that aril-like substance which contains the kernels, and which most resembles cream, or the blanc-mange of our tables; but a considerable drawback from the extreme gratification it procures to the palate of the Epicurean is its intolerable stench: even the rinds emit such offensive effluvia, that at Amboyna, as Rumpf and Valentin state, it is forbidden by the law to throw them out near any public path. Some compare this smell to that of putrid animal substances, others to that of rotten onions; but all agree, that if the first repugnance is once overcome, no fruit is more enticing than the *Durion*. These qualities are so very well known, that I was surprised to find it mentioned in the *Histoire de Voyages*, and copied from thence by Lamarck in his *Encyclopédie*, that the fruit of the *Durion* diffuses an *excellent* odour, but that its taste is rather unpleasant, it being that of *fried* onions. There are, besides, other errors in this description; for instance, that the fruit opens in four places, and so forth."

Mr. K.'s excellent description is illustrated by three plates, representing a small branch of the *D. Zibethinus*; dissections of the flower and fruit; and a middle-sized specimen of the latter in an entire state.

XVIII. *Observations on some Species of British Quadrupeds, Birds, and Fishes.* By George Montagu, Esq. F. L. S.

All the productions we have seen of this intelligent writer tend to convince us that he is not one of those naturalists whose attention is confined to form and arrangement, but that his studies have been very judiciously directed to acquire an acquaintance with the manners and economy of the animals he describes.—The first article that claims our notice in these *observations*, relates to that elegant little animal, the harvest-mouse, first pointed out by Mr. White as an inhabitant of the corn-fields and ricks about Selborne. Col. Montagu asserts that it is by no means confined to Hampshire; for, previous to its discovery by Mr. White, he can well remember that it was common in the more champaign parts of Wiltshire; and he has since found it in other parts of the same county, in Gloucestershire, and the south of Devonshire. That its nest should be without any opening is not peculiar to the harvest-mouse; for the author assures us, that most of the animals of this genus close the aperture of their nests whenever they have occasion to quit their young. The harvest-mouse appears to be a tender animal, as all attempts to keep it alive in a state of confinement have hitherto failed. Its favourite

abode during the colder months is the oat-rick, out of which the author has seen hundreds taken without showing any signs of torpidity; and in such a situation they appear to breed during the greater part of the year.—The situation in which the *Water-shrew* was found by Colonel Montagu's friend, we believe to be that which it particularly effects. The name bestowed upon it by M. Daubenton is not the most strictly appropriate, at least when applied to the habits of the animal in this country.—The *ornithological* part of this paper contains a circumstantial and interesting detail of the manners of the *Cirl Bunting*, an acquisition to the British *Fauna* for which the public is indebted to the author: notices respecting the Dartford warbler: observations tending to prove that the Alexandrian and Kentish plover are mere varieties of the Ringed plover; and an attempt to elucidate a very obscure genus of birds, by tracing the black-headed gull through the various changes which it undergoes before it attains to maturity. On some of these we may possibly have occasion in future to enlarge: at present we can only point them out as objects of curiosity to our readers.—Col. Montagu gives a full description, accompanied by a beautiful coloured print, of the *Cepola rubescens*, taken from a specimen in Salcomb Bay, on the south coast of Devonshire.—Another very rare animal which he has had the good fortune to meet with is, the *Sparus Niger*, or *Toothed Gilthead*. Of this species found on the British coast there is but one instance on record, and that occurred nearly a century ago. The author remarks that he has frequently taken up the Bimaculated Sucker, by dredging at Torcross in Devonshire, adhering to stones and old shells; and has kept several of them alive for a day or two in a glass of sea-water. In this situation they always adhered to the sides of the glass by the sucker, and frequently remained fixed till they died: and even after death the power of adhesion seemed to continue; for, on applying a wet finger to the part, the fish becomes suspended. When alive, they instantly attach themselves to the hand, if taken out of the water.

XIX. *Biographical Memoirs of several Norwich Botanists.* By James Edward Smith, M.D. F.R.S. P.L.S.

This tribute to the memory of unobtrusive merit affords a pleasing testimony to the moral character and liberal sentiments of its author, whose scientific acquirements are too generally known to acquire our eulogy. Speaking of the early prevalence of botanical pursuits in the place of his nativity, Dr. Smith remarks, that "a taste for the cultivation of flowers was probably imported from Flanders, along with the worsted manufacture,

manufacture, during the equally unchriſtian and unwiſe perſecutions of Philip II. Such an innocent luxury, and ſo pure a taſte, were not unworthy of minds which had turned with diſguſt from the tyranny and foul corruption of their native country. Truth, virtuous liberty, and diſintereſted ſcience, are congenial, and flouriſh under the influence of ſimilar circumſtances." At the cloſe of this paper, Dr. Smith takes occaſion to remark, on the ſubject of Britiſh *Mints*, that ſubſequent experience has ſtrongly confirmed the ſolidity of the characters taken from the pubeſcence of the calyx and flower-ſtalk; and that botaniſts in general can now, eaſily enough, make out any mint that comes in their way.

XX. *Further Account of the Bos Frontalis.* By Aylmer Bourke Lambert, Eſq. F.R.S. V.P.L.S.

This article has been anticipated under a former head.

XXI. *Deſcription of a large Species of Rat, a Native of the Eaſt Indies.* By Captain Thomas Hardwicke, F.L.S.

This animal is noticed by Dr. Shaw under the denomination *Mus Malabaricus*; but as it is the largeſt ſpecies of the genus at preſent known, the author apprehends that it may with propriety be named *Mus giganteus*. A faithful figure of the natural ſize, taken from a living ſubject, accompanies this paper. The ſubject here deſcribed and figured was a female. Its weight was two pounds eleven ounces and a half. It meaſured 26¼ inches, of which length the tail meaſured, from root to tip, 13 inches. The male grows larger, and weighs three pounds and upward.

"This rat is found in many places on the coaſt of Coromandel, in Myſore, and in ſeveral parts of Bengal, between Calcutta and Hurdwar. It is partial to dry ſituations, and hardly ever found diſtant from habitations. The loweſt caſt of Hindoos eat the fleſh of this rat in preference to that of any other ſpecies.

"It is a moſt miſchievous animal, burrows to a great depth, and will paſs under the foundations of granaries and ſtore-houſes, if not deeply laid. Mud, or unburnt brick walls, prove no ſecurity againſt its attacks, and it commonly perforates ſuch buildings in all directions. It is deſtructive in gardens, and roots up the ſeeds of all leguminous plants ſown within its haunts. Cucurbitaceous plants and fruits alſo ſuffer by its depredations. When grain and vegetables are not within its reach, or ſcarce, it will attack poultry; but the former is its choiceſt food.

"The bite of this animal is conſidered dangerous; and an inſtance of its effects came under my notice while at the military ſtation of Futtehgurh, in the Dooab, where an European in the honourable Eaſt India Company's artillery died under a confirmed hydrophobia, in about twelve days after having been bitten by a rat.

This

This opinion I reſt upon the judgment of the medical gentleman who attended the unfortunate man ſubſequently to the accident."

XXII. *Extracts from the Minute Book of the Society.*

On the 24th of February 1804, Sir Joſeph Banks preſented to the Society the whole of his very valuable collection of inſects, which have been accordingly removed to the Society's apartments. Mr. Lambert has aſcertained that the *Agroſtis linearis*, the *Durva* of the Hindoos, which is figured in the fourth volume of *Aſiatic Reſearches*, and ſo much celebrated by the late Sir William Jones for the beauty of its flowers, and for its ſweet and nutritious qualities as a food for cattle, is no other than the *Panicum Dactylon* of Linnæus. Although this plant grows ſparingly in Cornwall, yet it is never found there in the ſame perfection as in the ſouth of Europe, or in the Eaſt Indies; and Mr. Lambert thence conjectures that it is not originally a native of England.—The *Loxia Falcirоſtra*, or White-winged Croſsbill of Latham, was ſhot near Belfaſt, in January 1802. It was a female, and perfectly reſembled the figure in Dixon's *Voyage to the N. W. Coaſt of America*.—A gentleman of Norwich communicates a very curious fact relative to the muſical intervals in the notes of the *Cuckoo*. An eminent profeſſor there has invariably found the Cuckoo to begin early in the ſeaſon with the interval of a *minor third*. The bird then proceeds to a *major third*, next to a *fourth*, then a *fifth*: after which his voice breaks, without ever attaining a *minor ſixth*.—A new whale, or cachelot, was ſtranded in the county of Elgin, in the month of September 1803. The whole animal was ſixteen feet long. Mr. Sowerby, to whom the Society is indebted for this information, propoſes to name it *Phyſeter bidens*.

Art. XXV. *Flim Flams, or the Life and Errors of my Uncle, and the Amours of my Aunt. With Illuſtrations and Obſcurities, by Meſſ. Tag, Rag, and Bobtail. With an Illuminating Index.* 3 vols. with nine Plates, pp. 750. Price 18s. Murray, London. 1805.

It has been juſtly obſerved by a celebrated critic, that when ſatire is confined within its proper limits, and levelled at its proper objects, it becomes an honourable, as well as an uſeful occupation, in thoſe whom nature has gifted with the powers of detecting and expoſing the vices and follies of mankind.

> "What armed for virtue when I point the pen,
> Brand the bold front of ſhameleſs guilty men,
> Daſh the proud gameſter from the gilded car,
> Bare the mean heart that lurks beneath a ſtar." Pope.

It

It is impoſſible to read theſe lines without feeling a kind of reſpect bordering upon veneration for their author, and without indulging a ſecret wiſh that this noble deſign might have been crowned with the fulleſt ſucceſs. Not ſo the reader, or the reviewer, whoſe lot it is to peruſe the flimſy production now before us. We do not apprehend that he will be troubled by any ſuch emotions. Entrapped by the decoy of a whimſical title page and correſponding engraving, we fancied that ſomething facetious might be contained in theſe volumes to ſolace us from the fatigues of ſeverer labours, and without offence be it ſaid, never were we more miſerably diſappointed.

To enter into a minute examination of the literary merits, or demerits, of Flim Flams would be mere loſs of time; and to exert our critical animadverſions upon ſuch a ridiculous farrago would be to break a fly upon the wheel.

We believe that the author's deſign is to be ſatirical, and that he means to expoſe the faults, or the abſurdities of ſeveral of his contemporaries; but his ſtory is ſo thoroughly unintelligible, and his diction ſo affectedly obſcure, that we ſhould ſcarcely have hazarded this gueſs, had he not kindly aſſiſted his reader's underſtanding, by printing at full length in the notes, the names of thoſe whom it may be imagined that he alludes to in the text. Here we beg leave to exclaim with Silveſter Daggerwood, *This is new! This is new!* At leaſt we do not recollect at the moment, any prototype of ſuch an ingenious contrivance, except, perhaps, in the old ſtory of the ſign dauber, *This is the ſign of the White Horſe.*

In the notes then, we found a ſtrange aſſemblage of names of phyſicians, and of metaphyſicians, of gentlemen, and of artiſts, but how they came there, or in what paroxyſm of mental diſorder they were thus huddled together, is a problem, for the ſolution of which we humbly confeſs ourſelves to be completely inadequate.

It may, perhaps, be further alleged againſt the author of theſe otherwiſe innocent ſheets, that he has made ſome attempts at obſcenity; but in anſwer to ſuch moroſe critics, let it not be forgotten, that a writer who is reſolutely determined to imitate Sterne, without poſſeſſing any portion of Sterne's genius, muſt copy his defects, and ſubſtitute affectation for originality, and groſs indecencies for witty (though equally reprehenſible) immorality. If there be a few pages in this work leſs deſerving of cenſure than the reſt, their number is too ſmall to afford any protection to ſuch a maſs of incongruity, or any conſolation for having expended the ſum of eighteen ſhillings in its purchaſe.

Art. XXVI. *Lord Teignmouth's Memoirs of the Life, Writings, and Correſpondence of Sir William Jones.*

(Continued from page 39.)

THE Life of Sir William Jones is divided by his noble biographer into two parts; and his embarkation for India is very properly and naturally made the point of diſtinction between them. The former part we have already reviewed, and ſhown by what extraordinary attainments it was characterized. If his life had been ſignalized by nothing more than theſe, they ſtill were ſufficient to enſure him an honourable and laſting reputation: but now they may rather be conſidered as only the previous exerciſes and acquiſitions which were to prepare him for action in that higher ſphere in which he was from this time deſtined to move.

In April, 1783, he ſailed in the Crocodile frigate for Bengal: he was now in his 37th year, in the full vigour of his faculties, and he looked forward with ardour to the pleaſures and advantages which awaited him in India, without any apprehenſion that the climate of that country would prove hoſtile to his conſtitution. But his principal ſatisfaction was derived from the ſociety of Lady Jones, who accompanied him.

How perfectly this appointment accorded with his wiſhes we may learn by what he ſays in a letter to Lord Aſhburton, written on board the frigate juſt before he left England:

"In no other ſtation than that which I owe to your friendſhip, could I have gratified at once my boundleſs curioſity concerning the people of the Eaſt, continued the exerciſe of my profeſſion, in which I ſincerely delight, and enjoyed at the ſame time the comforts of domeſtic life."

After a voyage of about five months he arrived at Calcutta, in September 1783, and entered upon his judicial functions in the December following. Here, ſaith his biographer, he had the happineſs to find that his appointment had diffuſed a general ſatisfaction, for his reputation had preceded his arrival. The ſtudents of the Oriental languages were eager to welcome a ſcholar, whoſe labours and genius had aſſiſted their progreſs; while the public rejoiced in the poſſeſſion of a magiſtrate whoſe probity and independence were no leſs acknowledged than his abilities.

The intervals of leiſure from his profeſſional duties were devoted to ſcientific objects: but he ſoon perceived that the field of reſearch before him was too extenſive for the induſtry of any individual, and could only be explored with ſucceſs by the united efforts of many. He therefore deviſed the inſtitu-

tion

tion of a ſociety in Calcutta on the plan of thoſe eſtabliſhed in the principal cities of Europe. The ſuggeſtion was received with general ſatisfaction by thoſe gentlemen to whom he communicated it, and the members of the new aſſociation aſſembled for the firſt time in January 1784.

Having obtained the patronage and approbation of the Governor-General and Council of Bengal, they next proceeded to the nomination of a Preſident: and as Mr. Haſtings, then Governor-General, had been the firſt liberal promoter of uſeful knowledge in Bengal, and eſpecially the great encourager of Perſian and Sanſcrit literature, they thought him entitled to this mark of diſtinction; and accordingly requeſted that he would accept, at leaſt, the honorary title of head of the ſociety. When Mr. Haſtings declined this offer, Sir William Jones was immediately and unanimouſly choſen to fill the Chair.

This was the origin of the celebrated Aſiatic ſociety formed at Calcutta, an inſtitution which owes its exiſtence to Sir W. Jones. And we may form ſome judgment of the ardour and energy of his character from hence, that this inſtitution was planned, and arranged, and completed, within a few months after his arrival in India.

But while he was thus promoting extenſive inquiries into the various literature of Aſia, his own attention was directed to objects of ſtill greater moment. He ſoon diſcovered that no reliance could be placed on the profeſſors of Hindoo Law with whom he was concerned, unleſs he were qualified to examine their authorities and quotations, and to detect their miſrepreſentations and errors. For this end an acquaintance with the Sanſcrit was abſolutely neceſſary. He determined, therefore, to acquire, without loſs of time, a knowledge of that ancient language, from a conviction of its high utility in enabling him to diſcharge the duties of a judge with confidence and ſatisfaction to himſelf.

Thoſe who recollect his talent and peculiar facility in the acquiſition of languages will readily judge of the progreſs which he made in this. But it may not be amiſs to hear what he ſays himſelf upon the ſubject, in a letter to a friend in England:

"To Thomas Caldecott, Eſq.

"Your brother ſent me your letter at a convenient time, and to a convenient place, for I can only write in the long vacation, which I generally ſpend in a delightful cottage, about as far from Calcutta as Oxford is from London, and cloſe to an ancient univerſity of Brahmans, with whom I now converſe familiarly in Sanſcrit. You would be aſtoniſhed at the reſemblance between that language

and both Greek and Latin. Sanſcrit and Arabic will enable me to do this country more eſſential ſervice than the introduction of arts (even if I ſhould be able to introduce them), by procuring an accurate digeſt of Hindu and Mahomedan laws, which the natives hold ſacred, and by which both juſtice and policy require that they ſhould be governed."

Having therefore qualified himſelf, by his knowledge of the Sanſcrit, and the Hindu laws, for the execution of the plan which he hints at in this letter, he deemed it proper to apply to the government of Bengal for their aſſiſtance. This he accordingly did in a written propoſal to the Governor-General, Lord Cornwallis, from which we ſhall extract ſo much as ſerves to explain the nature of this great and beneficial deſign.

" My Lord,

" It has long been my wiſh to addreſs the government of the Britiſh dominions in India, on the adminiſtration of juſtice among the natives of Bengal and Behar. The Hindu and Muſſelman laws are locked up for the moſt part in two very difficult languages, Sanſcrit and Arabic, which few Europeans will ever learn, becauſe neither of them leads to any advantage in worldly purſuits: and if we give judgment only from the opinions of the native lawyers and ſcholars, we can never be ſure that we have not been deceived by them. The obvious remedy for this evil had occurred to me before I left England, where I communicated my ſentiments to ſome friends in parliament, and on the bench in Weſtminſter-Hall, of whoſe diſcernment I had the higheſt opinion; and thoſe ſentiments I propoſe to unfold in this letter.

" If we had a complete digeſt of Hindu and Mahommedan laws, after the model of Juſtinian's ineſtimable pandects, compiled by the moſt learned of the native lawyers, with an accurate verbal tranſlation of it into Engliſh, and if copies of the work were depoſited in proper offices, that they might occaſionally be conſulted as a ſtandard of juſtice, we ſhould rarely be at a loſs for principles, at leaſt, and rules of law applicable to the caſes before us, and ſhould never, perhaps, be led aſtray by the Pundits, who would hardly venture to impoſe upon us when their impoſition might ſo eaſily be detected. The great work of which Juſtinian has the credit, comprehends the whole ſyſtem of juriſprudence, public, private, and criminal: yet that vaſt compilation was finiſhed, we are told, in three years. It would not be unworthy of a Britiſh government to give to the natives of theſe Indian provinces a permanent ſecurity for the due adminiſtration of juſtice among them, ſimilar to that which Juſtinian gave to his Greek and Roman ſubjects; but our compilation would require far leſs labour, and might be completed with far greater exactneſs in as ſhort a time; ſince it would be confined to the laws of contracts and inheritances, which are of the moſt extenſive uſe in private life, and to which the legiſlature has limited the

the decisions of the supreme court in causes between private parties.

"Having shewn the expedience of a new compilation, I beg leave to state the difficulties which must attend the work, and to suggest the means of removing them.

"The difficulty which first presents itself is the expense of paying the Pundits who must compile the Digest, and the native writers who must be employed to transcribe it.—Although I can have no personal interest, immediate or consequential, in the work proposed, yet I would cheerfully have borne the whole expense of it, if common prudence had not restrained me. I am under a necessity, therefore, of intimating, that if the work be thought expedient, the charges of it should be defrayed by the government, and the salaries paid by their officers.

"The second difficulty is to find a director of the work and a translator of it, who with a competent knowledge of the Sanscrit and Arabic, has a general acquaintance with the principles of jurisprudence, and a sufficient share even of legislative spirit, to arrange the plan of a digest, superintend the compilation of it, and render the whole, as it proceeds, into perspicuous English; so that even the translation may acquire a degree of authority proportioned to the public opinion of his accuracy. Now though I am truly conscious of possessing a very moderate portion of those talents which I should require in the superintendant of such a work, yet I may without vanity profess myself equal to the labour of it: and though I would much rather see the work well conducted by any man than myself, yet I would rather give myself the trouble of it, than not live to see it conducted at all; and I cannot but know that the qualifications required even in the low degree in which I possess them are not often found united in the same person, for a reason before suggested. If your Lordship, therefore, after full consideration of the subject, shall be of opinion that a digest of Hindu and Mahommedan laws would be a work of national honour and utility, I so cherish both, that I offer the nation my humble labour as far as I can dispose of my time consistently with the faithful discharge of my duty as a magistrate. Should this offer be accepted, I should then request your Lordship to nominate the Pundits and Maulavis, to whom I would severally give a plan conformable to the best analysis that I could make; and I should be able, if my health continued firm, to translate every morning, before any other business is begun, as much as they could compile, and the writers copy in the preceding day.

"I have the honour to be, &c.

"W. JONES.

"Calcutta, 19 March, 1788."

Such a proposal could not fail of receiving that attention which it merited from the nobleman who presided in the government of India. The answer to Sir Wm. Jones was, that his Lordship deemed it singularly fortunate that a person so

eminently qualified for the task, should, from principles of general benevolence and public spirit, be induced to engage in an undertaking as arduous as it was beneficial.

With this sanction Sir Wm. Jones immediately entered upon the execution of the work; and having carefully selected, from the most learned Hindus and Mahommedans, a sufficient number of persons well qualified for the task of compilation, he traced the plan of the digest, prescribed its arrangement, and pointed out the manuscripts from which it was to be formed.

At the period when this work was undertaken he had resided in India barely four years and a half; during which time he had not only acquired a thorough knowledge of the Sanscrit language, but had extended his reading in it so far as to be qualified to decide upon the merit and authority of the books to be used in the compilation of his digest. He was likewise enabled, by his previous studies, to arrange its contents in a new and superior manner, which the natives themselves approved and admired.

Amidst this long and laborious employment, which might well be supposed to occupy all his leisure hours, he still found time for many literary productions: some of these we shall here notice.

In the year 1785 a periodical work was undertaken at Calcutta, under the title of the Asiatic Miscellany. It consisted chiefly of extracts from books published in Europe, relating to India, of translations from Oriental authors, and of poems and essays. The two first volumes contain the following compositions of Sir W. Jones, viz. The Tale of the Enchanted Fruit; six original Hymns, addressed to as many Hindu deities; a literal translation of twenty tales and fables of Nizami, (intended to assist the students of the Persian language) and other smaller pieces. Among these we find that beautiful tetrastic from the Persian, which, though it be well known, we may venture to present again to our readers, as a specimen of pure taste and correct sentiment, very rarely to be found in Eastern poetry:

> On parent knees, a naked, new-born child
> Weeping thou sat'st, when all around thee smil'd:
> So live, that sinking in thy last long sleep,
> Thou may'st then smile when all around thee weep.

The first volume of the Asiatic Researches was published in the beginning of 1789. Sir Wm. Jones selected the papers, and

and ſuperintended the printing, and contributed at leaſt one-third part to the contents of the volume.

In the ſame year, he preſented to the public his tranſlation of an ancient Indian drama, intitled Sacontala, or the Fatal Ring. Its author, Calidas, whom Sir Wm. Jones calls the Shakſpeare of India, lived in the firſt century before Chriſt, and wrote ſeveral other poetical pieces and dramas, of which Sacontala is the moſt celebrated. It exhibits a pleaſing and authentic picture of old Hindu manners; and is one of the greateſt curioſities that the literature of Aſia has yet brought to light.

A work of greater importance, and which occupied much more of his time and attention, was publiſhed by him in the beginning of 1794. This was a tranſlation of the Ordinances of Menu, compriſing the Indian ſyſtem of civil and religious duties. Menu is eſteemed by the Hindus the firſt of created beings, and the holieſt, as well as the moſt ancient, of legiſlators: and his ſyſtem (which is very comprehenſive and minute) may be conſidered as an Inſtitute of Hindu law. The motives which engaged Sir Wm. Jones in this taſk were the ſame that had prompted him to undertake the compilation of the Digeſt; viz. to ſecure to the natives of India the adminiſtration of juſtice to a certain extent, by their own laws.

It is evident that no man could have performed what Sir Wm. Jones did, without a ſtrict economy and exact diſpoſition of his time. While buſineſs required his daily attendance in Calcutta, his uſual reſidence was on the banks of the Ganges, at the diſtance of five miles from the court: to this ſpot he returned every evening after ſun-ſet, and in the morning roſe ſo early as to reach his apartments in town, by walking, at day-break. The intervening hours of each morning, till the opening of the court, were regularly allotted and applied to diſtinct ſtudies. He paſſed the months of vacation at his retirement at Criſhna-nagur, in his uſual purſuits. The following ſchedule (copied from his own writing) exhibits the occupations which he had preſcribed to himſelf for one of theſe periods:

DAILY STUDIES

FOR THE LONG VACATION OF 1785.

Morning	- - -	One letter.
		Ten chapters of the Bible.
		Sanſcrit Grammar.
		Hindu Law, &c.
Afternoon	- - -	Indian Geography.
Evening	- - -	Roman Hiſtory.
		Cheſs, Arioſto.

He was not permitted to follow these studies without interruption. The climate of India, which at last proved fatal to him, brought on a severe and dangerous illness in the Summer next after his arrival there. The author of his Memoirs 'saw him in August 1784, in the vicinity of Moorshedabad, languid, exhausted, and emaciated, in a state of very doubtful convalescence; but his mind had suffered no depression, and exhibited all its habitual fervour.' 'At this time,' he says of himself in a letter, 'I was quite overpowered by a fever, which has confined me ten weeks to my couch, but is now almost entirely abated, though it has left me in a state of extreme weakness.' (p. 248.) From Moorshedabad he proceeded to Bhagilpoor, the residence of the friend to whom that letter was addressed, and there he was long detained by illness and debility. The vigour of his mind, however, still continued unimpaired.

"It was at this place, during the hours of convalescence when he was confined to his couch, that he applied himself to the study of botany, a science for which he had early entertained a great partiality, and which he pronounces the most lovely and fascinating branch of natural knowledge. With the works of Linnæus before him, he procured the plants of the country to be brought to him, and comparing the productions of nature with the descriptions and arrangements of the Swedish philosopher, he beguiled the hours of languor and disease, and laid the solid foundation of that botanical knowledge, which he ever afterward cultivated with increasing ardour and delight."

After his recovery from this illness, however, he appears to have enjoyed a good state of health for a considerable period: for thus he expresses himself in his correspondence, at the latter end of 1787:

"My constitution has overcome the climate; and if I could say the same of my beloved wife, I should be the happiest of men; but she has perpetual complaints, and of course I am in perpetual anxiety on her account. I cannot, however, let the season slip, without scribbling a few lines to tell you that my constitution seems to have overcome the climate, and that I should be as happy as a mortal man can be, or perhaps ought to be, if my wife had been as well as I have for the last three years."

But the Memoirs inform us, that this hope with which he flattered himself was unfortunately ill founded, and that few months elapsed without his suffering from the climate, and that every attack tended to weaken the vigour of his frame. In March, 1793 Lord Teignmouth returned to Bengal, to succeed Marquis Cornwallis as Governor-General, and he gives the following account of Sir Wm. Jones at that time:

"I had

"I had the ſatisfaction to find my friend, although ſomewhat debilitated by the climate, in a ſtate of health which promiſed a longer duration of his life than it pleaſed Providence to aſſign him. The ardour of his mind had ſuffered no abatement, and his application was unremitted. The completion of the work which he had undertaken occupied the principal portion of his leiſure, and the remainder of his time which could be ſpared, was as uſual devoted to literary and ſcientific purſuits. Botanical reſearches occaſionally diverted his hours of relaxation, but he found impediments to them from the weakneſs of his ſight and heat of the climate.

"The conſtitution of Lady Jones, which was naturally delicate, had ſuffered ſo much from repeated attacks of indiſpoſition, that a change of climate had long been preſcribed by the phyſicians as the only means of preſerving her life; but her affectionate attachment to her huſband had hitherto induced her to remain in India, in oppoſition to this advice, though with the full conviction that the recovery of her health, in any conſiderable degree, was impoſſible. She knew that the obligation which he had voluntarily contracted to tranſlate the digeſt of Hindu and Mahommedan laws, was the only, the inſuperable obſtacle to his accompanying her, and his entreaties were neceſſary to gain her reluctant aſſent to undertake the voyage without his ſociety. When it was finally ſettled that Lady Jones ſhould return to England, he determined himſelf to follow her in the enſuing ſeaſon, hoping by this period to have diſcharged his engagements with the government of India. She embarked in December 1793."

We are now approaching to the period when this valuable life was prematurely and almoſt ſuddenly cloſed: we ſhall tranſcribe from the Memoirs the page in which that melancholy event is related.

"The few months allotted to his exiſtence after the departure of Lady Jones, were devoted to his uſual occupations, and more particularly to the diſcharge of that duty which alone detained him in India, the completion of the Digeſt of the Hindu and Mahomedan law*. But, neither the conſciouſneſs of acquitting himſelf of an obligation which he had voluntarily contracted, nor his inceſſant aſſiduity, could fill the vacuity occaſioned by the abſence of her, whoſe ſociety had ſweetened the toil of application, and cheered

* It is certainly to be greatly regretted that Sir William Jones did not live to tranſlate the digeſt of Hindu law, in the compilation of which he had beſtowed ſo much time and attention. It is however ſatisfactory to know that his benevolent intentions in this laborious work have not been diſappointed, and that Mr. H. T. Colebrooke, in the civil ſervice of the Eaſt India Company at Bengal, from motives of public ſpirit, and a laudable hope of diſtinction, has completed a tranſlation of it, with an ability which does him the higheſt credit.

his hours of relaxation. Their habits were congenial, and their purſuits in ſome reſpect ſimilar; his botanical reſearches were facilitated by the eyes of Lady Jones, and by her talents in drawing; and their evenings were generally paſſed together in the peruſal of the beſt modern authors in the different languages of Europe. After her departure, he mixed more in promiſcuous ſociety; but his affections were tranſported with her to his native country.

"On the evening of the 20th of April, or nearly about that date, after prolonging his walk to a late hour, during which he had imprudently remained in converſation, in an unwholeſome ſituation, he called upon the writer of theſe ſheets, and complained of agueiſh ſymptoms, mentioning his intention to take ſome medicine, and repeating jocularly an old proverb, that "an ague in the ſpring is medicine for a king." He had no ſuſpicion, at the time, of the real nature of his indiſpoſition, which proved, in fact, to be a complaint common in Bengal, an inflammation in the liver. The diſorder was, however, ſoon diſcovered by the penetration of the phyſician, who after two or three days was called in to his aſſiſtance; but it had then advanced too far to yield to the efficacy of the medicines uſually preſcribed, and they were adminiſtered in vain. The progreſs of the complaint was uncommonly rapid, and terminated fatally on the 27th of April 1794. On the morning of that day his attendants, alarmed at the evident ſymptoms of approaching diſſolution, came precipitately to call the friend who has now the melancholy taſk of recording the mournful event: not a moment was loſt in repairing to his houſe. He was lying on his bed in a poſture of meditation, and the only ſymptom of remaining life was a ſmall degree of motion in the heart, which after a few ſeconds ceaſed, and he expired without a pang or groan. His bodily ſuffering, from the complacency of his features, and the eaſe of his attitude, could not have been ſevere; and his mind muſt have derived conſolation from thoſe ſources where he had been in the habit of ſeeking it, and where alone in our laſt moments it can ever be found.

"The deep regret which I felt at the time that the apprehenſions of the attendants of Sir William Jones had not induced them to give me earlier notice of the extremity of his ſituation, is not yet obliterated. It would have afforded me an opportunity of performing the pleaſing but painful office of ſoothing his laſt moments, and I ſhould have felt the ſincereſt gratification in receiving his lateſt commands; nor would it have been leſs ſatisfactory to the public to have known the dying ſentiments and behaviour of a man who had ſo long and deſervedly enjoyed ſo large a portion of their eſteem and admiration.

"An anecdote of Sir William Jones, upon what authority I know not, has been recorded, that immediately before his diſſolution, he retired to his cloſet, and expired in the act of adoration to his Creator. Such a circumſtance would have been conformable to his prevailing habits of thinking and reflection, but it is not founded in fact: he died upon his bed, and in the ſame room in which he had remained from the commencement of his indiſpoſition.

"The funeral ceremony was performed on the following day with the honours due to his public ſtation: and the numerous attendance of the moſt reſpectable Britiſh inhabitants of Calcutta evinced their ſorrow for his loſs, and their reſpect for his memory."

In the concluſion of theſe memoirs the noble author has pourtrayed the character of Sir William Jones with a friendly, but not unfaithful pencil. And firſt, he has diſplayed the religious principles of his friend in ſo full and fair a light, as to deſerve, on that account, the public gratitude. For it is important to the cauſe of true religion, and alſo a ſeaſonable admonition to the preſent age, to demonſtrate that a man, ſo enlightened and ſincere as Sir William Jones, was upon conviction a devout Chriſtian*. His political opinions are touched upon in a manner that ſeems intended to conciliate thoſe who entertain different ſentiments, and whoſe maxims in politics are the oppoſite to his. It is true, the number of ſuch is very great, and very powerful: yet we muſt take leave to expreſs our opinion, that the honeſt and manly ſpirit of Sir William Jones would have been more gratified if this part of his character had been delivered in a tone of vindication unmixed with apology. The declaration which he made in early life was verified in the whole tenor of it, viz. that his only object in politics ſhould be to preſerve the conſtitution inviolate†. Did he to the lateſt period, retract, or ſoften, or conceal his political ſentiments? No: he had long ſeen into the character of the preſent age‡, and underſtood too well the temper and manners of his countrymen to apprehend any danger to the Britiſh conſtitution from popular violence, or doctrines in favour of liberty. To the noble writer's eulogium of the moral and intellectual endowments of Sir William Jones we ſubſcribe with entire ſatisfaction. If the ſurvey of theſe memoirs has led us, in ſome few particulars, to diſſent from the noble author, yet, for much the greater part, he is entitled to our approbation and reſpect. He may, perhaps, lightly value the praiſe of having written his work in a perſpicuous and elegant ſtyle, and

* To the numerous proofs and teſtimonies upon this head, which the memoirs contain, we ſhall add one more, extracted from a letter of Sir William Jones to Profeſſor White.

"Give me leave to preſent you with a Perſian MS. as a ſmall return for the pleaſure which I have received from your lectures, eſpecially from that upon the character of Chriſt.

"I am, dear Sir,

"Your faithful friend and Servant,

W. JONES.

Gardens, near Calcutta, 21ſt January, 1787.

† See Memoirs, p. 60. ‡ Ibid, p. 214.

without

without any affectation of ambitious ornament; but it must give him a real pleasure to reflect that his pen has been successfully employed in recommending those virtues which are the most beneficial and ornamental to our nature; and, that in performing this office of piety to his friend he has raised for himself a lasting monument which does honour to his understanding and his heart.

We have observed a few trivial errors, which are here noticed that they may be corrected in the next edition. In the Preface, p. xiii, Sir William Jones's monument is said to be placed in *the anti-chamber to the chapel of University college:* this is an improper phrase; it should have been, *the ante-chapel of University college.* In p. 110, we read, "In the Easter term of that year, *during the Encænia.*" These last words should be omitted. The Encænia are never celebrated in the Easter, but in the Act Term. In p. 133 *is scarcely yet free from commotion,* should be, *has been a long time tottering,* the original is, jamdudum σαλευει. P. 144, μαλα μοναρχικος. *Too despotic:* μαλα is not *too,* but *very.* P. 178, *ante annum fere cum dimidio,* is rendered, *about six months ago,* by mistake for, *almost a year and a half ago.*

CORRESPONDENCE.

We have received the following letter, and, although we do not perceive that our words convey the meaning alluded to by the writer, yet out of respect to his feelings, we have thought proper to publish it at full length.

"February 1st, 1805.

"Sir,

"As the husband of Mr. Wilkes's surviving daughter, I feel "myself called upon to state, that an insinuation contained in the "last Number of the Imperial Review is wholly without founda- "tion, and originates in mistake. *Not one of the Letters* pub- "lished by Messrs. Longman and Co. comes from that lady: they "were obtained from other relatives of Mr. Wilkes, as Mr. Almon "himself must be well aware, to whom, I understand, they were "offered previous to Mr. Longman's purchase of them. I shall "think myself indebted to you for doing Mrs. Rough and myself "the justice of contradicting that passage of the Review.

"I am, Sir,

"Your obedient servant,

"William Rough."

We have also to acknowledge the receipt of a letter from Mr. Pryme (the ingenious author of the Greek Ode reviewed in our last Number) and we shall take an early opportunity to consider it.

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